December 1989 Vol. 3 Nº 3 Price £1.80

Archive

The Subscription Magazine for Archimedes Users

APL on the Archimedes

New DTP column starts

Full Shareware/Careware List

OsSWI Calls Module

Introduction to C – Part 3

Reviews: Presenter 2, LC10 colour dump, Keyword, ALPS, FaxFile Manager.

Future Issues

I've managed to get this issue out in reasonable time, but I suspect that the January one will be a little late. I can see why Risc User only have 10 issues per year!

As you may have noticed, we've still got the new fatter Archive – 60 pages again. There is a lot of information in this issue, but I have noticed that more and more is in the form of the special sections like the new DTP column. It would be good to have a few more major articles. Why not write something during the Christmas holidays?

Careware rules, OK?

You will be pleased to know that through sales of Careware discs and through our charity sales line we have so far rasied £5,700 for the three charities: Norwich Toy Library, Children in Need and T.E.A.R. Fund. Well done, keep it coming. Careware 5 will be ready by the time you read this and it contains, amongst other things two stunning demos from West Germany, one of which shows you 32,768 colours on screen at one time! Please keep sending the programs.

How's the back?

Thank you so much to all those who sent their good wishes for the full recovery of my back. You will be please to know that it is better than it has been for a long while and that my big toe, which was disabled due to nerve damage, is gradually getting back to normal. I thank God that I am now able to wiggle **all** my toes!

"Why do you keep going on about God?", some of you ask in your letters. Some have even said that unless I stop making such comments, they will cancel their subscriptions. What I have done this month is to put my comments separately below so that they can avoid reading them.

I do hope you have a very happy Christmas!

Paul B

Government Health Warning: Reading this may seriously affect your spiritual health.

If you saw a blind man walking along a path that you believed led straight over the edge of a cliff, you would try to warn him about it. If he refused to listen to what you were saying, would you just shrug your shoulders and leave him to his fate? No, surely, you would try to persuade him of the danger.

What do you think of the things that Jesus said? He had some sound wisdom about how we should live our lives. "Do unto others..., etc." That's fine, but he also said some less palatable things that people tend to ignore. For example, he said* "Whoever believes in me has eternal life," (So far so good!) "but whoever rejects me will not see life, for God's wrath remains on him." Ouch! What happened to "gentle Jesus, meek and mild"?

Now, if the things Jesus said were **not** true then I am making a fool of myself because there is no cliff there at all. But if what he said **IS** true then I **must** try to get people to stop and think before they go any further. You could use the Christmas period to find out what he actually did say. Why not read one of the gospels – John's gospel, for example? If you don't have a bible or, at least, not one in a modern translation, drop us a line and we will be happy to send you a copy of John's gospel as a Christmas present. If I'm right about the cliff, it could be the best Christmas present you ever had!

(* John chapter 3, verse 36)

Archive

Volume 3 • Nº 3 • December 1989

Contents

Products Available 2
Charity Sale Items 3
Forthcoming Products 4
Matters Arising 4
Hints & Tips 6
Comment Column 10
Credit where it's due 16
Contact Box 16
DTP Column 20
Small Ad's 21
Presenter II Review 23
Help!!! 27
Help Offered 27
LC10 Colour Dump 28
Keyword Desktop Thesaurus 32
OsSWICall Module 34
Pipeline 37
BASIC V Forum 39
Introduction to C – Part 3 41
Languages Forum 45
MS-DOS Column 46
APL on the Archimedes 48
ALPS Adventure Programming ..50
Shareware / Careware List 52
Fax*File Manager 59
Competition Corner 60
Fact-File 61

Archive magazine is edited by Paul Beverley and published by Norwich Computer Services.

Products Available

• **Acorn Assembler** (£199 + VAT or £195 through Archive) comprises three programs plus a manual; Aasm which assembles files for immediate execution, ObjAsm which assembles files into Acorn's AOF format and Linker which links AOF files.

• **All-in Boxing** from Dabs Press complete with its digitised grunts and groans is now available for £14.95 (£14 through Archive).

• **ALPS System and Cops** from Alpine Software which were mentioned last month (3.2 p 2 and 3.2 p 4) are now available through Archive for £29 and £18 respectively.

• **C Front (release 2)** from Mitre Software now supports release 3 of Acorn ANSI C. Users can receive a free upgrade of C-front by returning their original master disc to Mitre Software.

• **Clares' Artisan Update** – the 256 colour art package ProArtisan has been reduced in price to £99.95 inc VAT (through Archive £85) and Artisan 2 is now available from stock £59.96 in VAT (through Archive £55). Existing Artisan owners can upgrade to Artisan 2 by sending just their original disc and £30 to Clares (or £28 through Archive).

• **Computer Concepts Upgrades** – the Inter-ROM series along with SpellMaster now work under RISC-OS and a free upgrade is provided by Computer Concepts. Just send back your Archimedes ROMs or discs to Computer Concepts and they will upgrade them for you.

• **Disc Utilities from The Data Store** (see Archive 3.3 p 32) is now available through Archive for £15. Soon to be available is FontFX (£10 through Archive) which uses Acorn's Outline Font Manager to construct !Draw paths of anti-aliased text. The text can be drawn around various shapes e.g. straight lines, circles, arcs and can be rotated, scaled, shadowed, etc. This allows you to produce sophisticated text shapes that can be loaded into applications such as !Draw, Impression, Acorn DTP, etc.

• **E-Type Designer** is now available at £16 from Archive – design your own courses with custom obstacles, etc.

• **External Dual 3.5" drives for the A3000** are available from Morley Electronics for £125 + VAT or through Archive for £135. The plug-in upgrade is easy to install and does not require a separate PSU as the drives draw their power from the A3000.

• **Fireball II** – Cambridge International Software will be releasing this game in a games 'mini-pack' after Christmas. The game offers digitised sounds and all sorts of extra bat'n'ball functions such as mirror, snake, laser, etc. Until then, the game can be obtained for £8.50 from the author, Simon Heather, at Mayfield House, Bunbury, Cheshire, CW6 9SY or telephone (0829) 260476.

• **Fun School 2** from Database Software comes in three versions: under 6's, 6 – 8's and Over 8's. Each has eight different educational games for just

• **G.A.Herdman Educational** have a whole range of educational programs, long established in the BBC/Master market, which have now been made available in completely re-written form making full use of RISC-OS. They range in price from £9.99 to £39.99 and include titles such as Household Electricity, Advanced Chemistry Assessment, Atomic Theory Plus, Advanced Organic Chemistry II, Advanced Inorganic Chemistry II, Advanced Physical Chemistry II, Periodic Table, Periodicity 1 & 2. Send them an s.a.e. for full details.

They are also working on a product called DTP_ Images which is disc full of images, specifically designed for the education market, which will supplement Acorn's own DTP examples disc.

• **Holed Out Designer** – Now you can design your own golf courses and so never get tired of playing Holed Out. £18.95 from Impact or £18 through Archive.

• **Jigsaw** from 4mation Educational Resources (£29 + VAT) consists of 16 full screen pictures (featuring artwork from Rodkey Matthews and David Cowell) which can be jumbled-up into a jigsaw by a rather clever program. It offers various degrees of difficulty from great big pieces which are all orientated in the correct direction to lots of little pieces all higgledy-piggledy.

• **MacroAssembler** from Wingpass (£47 through Archive) produces AOF files and is easy to use to create relocatable modules. This assembler has several special features which make it ideal for use with C language programs.

• **Memory Upgrades for A3000** from Morley Electronics – 1M & 3M upgrades are now available (£150 and £415 plus VAT). The boards are easy to install as they plug into the standard RAM expansion sockets provided and offer full compatibility with all Acorn software. We have managed a very special deal with Morley and can offer them at £140 and £395 inc VAT and carriage.

• **Memory Upgrades for A3000** – CJE Micros have a 1M upgrade for the A3000 at £165 (Archive price). They are also working on a 3M upgrade and will, in due course, be offering a trade-in on the 1M version.

• **Memory upgrades for A305** – SPEM in Italy has produced a 2M upgrade that can be fitted into an A305 or an upgraded A305. Basically, it plugs into the sockets used by the second half Mbyte of ram on the main p.c.b. In addition it requires a couple of tracks cutting on the underside of the p.c.b. and a couple of wires soldering onto it. It is not for the faint-hearted and, needless to say, fitting it will void your warranty. SPEM are offering it at a special price to Archive subscribers in Italy – Lire 750.00 or, to other European Archive subscribers, £299.99.

• **MultiStore**, Minerva's long awaited fully relational database system, is now in stock. It is multitasking and handles multiple files open at once and has lots of interesting features. The price is just £299 inc VAT. (£250 through Archive)

(Many of you have protested against Minerva's policy of copy protecting their discs and some have even said that, on principle, they would not buy any of Minerva's products. It may be of interest to you to know that MultiStore is not, as far as we can see, copy protected and it can be backed-up using the standard *BackUp command.)

(We have a review copy of MultiStore, but before you all write in, offering to do the review and get your free review copy, I should say that we need someone who really knows about databases and who is already familiar with System Delta Plus, Alphabase and also Pipedream 3, preferably, so that we get a better over-view of what is available and how MultiStore compares with the opposition. MultiStore is an extensive package and we want to do justice to it in the review.)

• **New language compiler** – Cambridge Pascal is now available from Dabs Press for £79.95 (£70 through Archive). This is a comprehensive version of Pascal with many extras for use on the Archimedes, including access to star commands and SWI's, compilation of relocatable modules, desktop compatible, full dynamic string handling, local error handling and random access files.

• **The Datafile of Educational Software and Addresses** is now in its sixth edition. It offers 4370 records of software titles and over 1000 addresses of agencies likely to be of interest to the educational computer users. For more details contact Nick Evans, PO Box 55, Grimsby, DN32 0QB or phone (0472) 77215 (evenings and weekends only).

• **Worra PCB** and **Worra CAD** have now been rewritten to take full advantage of the RISC-OS window environment. The packages are available from Oak Computers and each costs £49.95 inc VAT (or £46 through Archive).

• **Worra Plotter** will allow HPGL compatible plotters to plot draw files. The package allows you to configure the pen speed, plotter size, pen configuration and size/offset of the drawing. It costs £29.95 inc VAT from Oak Computers (or £27 through Archive).

Review Software Received...

Apart from reviews already written we have received review copies of the following software:

MultiStore (Minerva), Jigsaw (4mation), Fun School 2 (Database Software) three separate packages for three age ranges. A

Charity Sale Items

We have the following for sale for charity:

- BBC to ARM Utilities (£5 minimum)
- Clares' ArcBuffer (£3 minimum)
- Graphic Writer (£10 minimum)
- Cross Star (David Pilling) (£3 minimum) A

Forthcoming Products

• **8M ARM3 for the Archimedes** – Mike Harrison is developing a board for Watford Electronics which will upgrade the A440/R140 to 8M of memory and an ARM3. The board will also be available with either 8M RAM or the ARM3 and can then be upgraded to the full 8M ARM3 option. There are also plans to produce a 4M ARM3 board for the A300 series machines. However, 8M for the A310 will have to wait until the cost of 4M RAMs get cheaper.

• **Arcade Soccer** will shortly be available from the 4th Dimension (£19.95 inc VAT). We have received a Demo version of this game and it looks quite promising. It includes features such as 1-24 players, friendlies, weather conditions, joysticks or keyboard, corners, sliding tackles, goal kicks, dribbling, etc.

• **ArcLight** is a ray tracing package which is being developed by Ace Computing for users of Euclid. It will allow scenes that have been designed using their 3D graphics package to be rendered by applying sophisticated mathematical equations that simulate the effects of real light rays e.g. shadows, reflection, refraction, etc.

• **Computerware** are planning on releasing several bits of hardware for the Archimedes range. These include a colour modulator (December), disc buffer (December), RAM upgrades for A310's and A3000's (December), and SCSI hard drives ranging from 45M to 210M (January).

• **Genesis** from Software Solutions is being developed in conjunction with Hampshire LEA. It will provide a Hyper Card type environment, allowing pages to be created containing text, graphics, sound, and animation. Pages can be easily linked together to create demos, databases, etc. It seems to be an ideal tool for Computer Aided Learning applications. A

Matters Arising

• **!Psion program (Shareware 16)** – These lines should be added to version 1.52 of the program "!Psion.!RunImage" to correct a small bug.

```
4131 IF dot>0 THEN
4132 second_dot=INSTR(temp1$,".",dot+1)
4133 IF second_dot>0 THEN dot=second_dot
4134 ENDIF
```

• **Acorn DTP hint** – To correct last month's hint that was visited by the typesetting gremlins: If you want to import text that has a return at the end of each line e.g. spooled BASIC programs, poetry, etc then if you import them directly Acorn DTP will ignore the returns and give you a continuous block of text. There is a way around this problem:

1 In ADP define a new style say "PROGRAM" or "POETRY"
2 Set SPACE ABOVE to 0
3 Load your text into EDIT
3 EDIT MENU
4 FIND MENU
5 MAGIC CHARACTERS ON
6 FIND \n (a LF)
7 REPLACE WITH \n\n<PROGRAM>
8 GO

\n is the magic character for an LF. You need the < > round the new style for Acorn DTP to translate it properly. What you do is replace each LF with two LFs and the new style.

• **Hi-Tech 2400 modem** – Contrary to the review in Archive 3.1 p 29, this modem can be purchased from Modem Marketing Ltd, Unit 10 High Tech Centre, Bakewell Road, Orton Southgate, Peterborough, PE2 0XU. (0733) 371388.

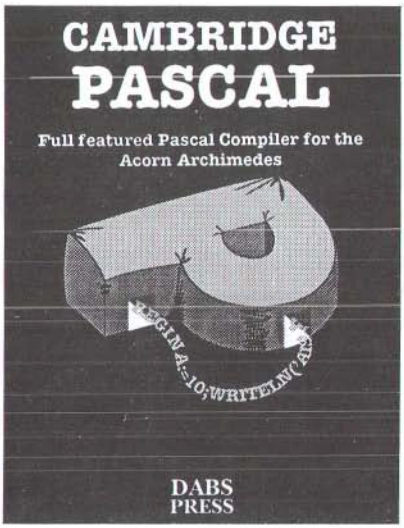
• **MS-DOS program listing error** – A typesetting error crept into the search procedure listing of November's MS-DOS Column (page 40). It should read:

```
:SEARCH
find "%1" \filename.dat |more
:END
```

where | is the bar character ASCII code 124 (decimal).

• **WORRA lotta PDT!** – In the PC Show Report, Adrian said that Oak have sold over 200 copies of their CAD package PDT. This should have read 2000 copies! Sorry.

Writing RISC OS programs? Looking for an alternative to BASIC?



Cambridge Pascal is a comprehensive version of the Pascal language and includes many extra enhancing features over the standard specification including

- Full dynamic string handling
- Local error handling
- Random access files
- Direct access to 'star' commands
- Access to RISC OS SWI calls
- 100% Desktop compatible
- Source files can be written in !Edit or Twin
- Compilation to absolute code or relocatable modules.
- Can also be run from the command line

All programs compile into fast, efficient machine code. Pascal is a language much more suited to compilation than BASIC, and the code size and speed improves considerably even on our own ABC BASIC compiler. You can genuinely use this product to produce commercial software.

Cambridge Pascal requires any Archimedes running RISC OS with at least 1Mb of RAM. Hard discs and extra memory are useful, but the system is perfectly workable with this minimum configuration.

The language is also an ideal implementation for students of Pascal, and can be used for any coursework in the language. The superb error handling and run-time trace facility make the language particularly suitable for use in education. Tracing of a program's execution can be performed at source level, to file, printer or screen.

Cambridge Pascal also supports a wide range of compiler directives, allowing disc or RAM-based compilation, inclusion or exclusion of extensions (for production of portable source for inferior compilers), conditional compilation, inclusion of $include files, code tracing, and many other options.

Full run-time textual error messages are supported, and a comprehensive intelligible set of errors and warnings are used to flag any compile-time problems.

The $include file system allows you to build up libraries of additional procedures and functions, extending the language as much as you like. Already provided are a collection of routines concerning with desktop programming—the creation of multi-tasking programs which run from desktop windows.

The price of the package is £79.95 (£69.52+VAT). A free demonstration disc and full specification sheet is available on request.

Whether you're just learning or a Pascal expert, then Cambridge Pascal is for you.

DABS PRESS

Cambridge Pascal is available from all Acorn dealers or in case of difficulty post free from Dabs Press (AR), 5 Victoria Lane, Whitefield, Manchester M25 6AL. Tel. 061-766 8423. Fax. 061-766 8425. Access/Visa accepted. Foreign price £69.52 plus postage £2.50 (surface) or £12 (air) Full Archimedes or BBC catalogue available on request.

Hints & Tips

• **AutoCAD to !Draw conversion** – The RISC-OS application !Draw can accept input from a DXF (Drawing Interchange Format) file. These files can be produced by packages such as 'AutoSketch' and 'AutoCAD'. To get a file from a IBM PC running the 'AutoCAD' package to !Draw the following procedure should be used.

On the IBM PC:

1. Do a 'DXFOUT' command from within AutoCAD to output the current file in DXF format.
2. This file should be copied to a IBM format 5.25" or 3.5" disc.

On the Archimedes:

3. Start the PC emulator on the Archimedes.
4. Perform a 'putfile MS_DOS_Name.dxf ADFS_Name' from within the emulator to transfer the file from MS-DOS to RISC-OS.
5. From within RISC-OS set the file type of your file to &DEA (*SETTYPE ADFSName DEA).
6. Start !Draw and drag the DXF file to its icon or into a !Draw window.

!Draw will ask you a question about the 'units' (scale) before redrawing the image in the window. This may require some thought to get the required effect. !Draw appears to get confused with some entries in DXF files and refuse to load the file. Deleting the text in the original picture may cure the problem. AutoSketch on the Archimedes can also produce DXF type files for input into !Draw.

• **'C' Operating System calls (cont'd)** – The following example program shows how system commands can be invoked from a C-program. It was tested under Acorn ANSI C version 2. The use of the function 'system' is part of the proposed ANSI standard for C, although its exact implementation is left up to the individual versions of C. The Acorn 'ANSI C' library function 'system' returns a zero value if the command executes successfully and non-zero if it fails. Problems will occur if the command being executed over-writes the C-program (for example if the command starts up a second C-program), but in the example both commands are 'built-in' and therefore do not overwrite the invoking program. In theory, the *RMLoad command fails if there is not enough RMA, but in testing the example, it worked even when the free RMA was configured to 0k.

```
/* > c.systest */
#include <stdlib.h>     /* General
                           utilities  */
#include <stdio.h> /* Input/output
                                      */

int main ()
{
static char rmload[]="rmload
          system:modules.memalloc";
static char screensave[]=
           "screensave screenfile";
int result1,result2;
result1=system(rmload);
result2=system(screensave);
printf("Result1=%d, Result2=%d\n"
                 ,result1,result2);
return(0);
}
```

• **Dead modules** – If you install a module which claims a vector and then press the reset button, something very strange happens when you want to *RMKill the module. Because the vector can't be released, the module isn't killed properly. To let you know about this, RISC-OS puts the dummy address DEADDEAD where you would expect the workspace address:

```
*rmkill printkill
Bad vector release
*modules
No Position Workspace Name
1  0380873C 00000000 UtilityModule
2  0381FB94 01800014 FileSwitch
...
27 0387EA48 00000000 SpriteUtils
28 01813BC4 DEADDEAD PrintKey
etc
```

• **Definitive modem connections?** The following connections work with ArcTerm601, Hearsay and the Archive BBS for the WS3000 and SM2400 modems:

Arc RX (2) to Modem TX (3)

Arc TX (3) to Modem RX (2)

Arc GND (5) to Modem GND (7, not 1)

Arc RI (9) to Modem DCD (8)

Arc CTS (8), DCD (1), and DTR(4) to Modem DTR (20)

Arc RTS (7) to Modem RTS (4)

Arc DSR (6) to Modem CTS (5)

• **Digitisers?** Who needs one, anyway ? We recently faced the problem of how to get the company logo into a DRAW file, and came up with a solution which may be useful to other people. It is most applicable to images bounded largely by straight lines.

First take the image and enlarge it repeatedly using a photocopier until it fills more than a third of the screen of the monitor you are using. Then make one more enlargement, onto the transparent acetate sheets used for overhead projector foils. If you do not have a copier you will find most high street copier services can do all this for you, probably for less than a pound. Our copier will enlarge to 145% at a time.

Now cut out the piece of acetate showing the image, and put it on your monitor screen. You will find it sticks most satisfyingly. Enter DRAW and register the coordinates of the corners of the image. You may want to have a grid on the screen to ensure you line up the acetate image with the edges of the screen. You can also check alignment by reading the coordinates of points which should be the same distance from an edge of the screen and adjusting them as necessary.

We found this was much easier than transcribing even simple shapes by eye, as it was hard to get the proportions right that way. It was also much quicker than drawing a grid and transcribing coordinates from that. Laurie van Someren, Aleph One Ltd

• **Interdictor Flight Recorder!** – It is possible to fly the plane on your own, run or even record a demo flight. This can be done by altering the !Run file in the !Interdictor directory. On the bottom line of this directory is the 'fly' command. Its permutations are as follows:

```
fly                    (just fly the plane as usual)
fly playback <filename>  (replay a
    demo flight from a file)
fly record <filename>  (record the
    flight to a file)
```

If you want an example of how this works, you can look at the !RunDemo file in the Interdictor directory. This file runs the demo file call DemoFlight.

• **Low Batteries?** One reader noticed that after 15 months, his Archimedes' configuration settings began to change inexplicably e.g. the loss of all disc drive icons in the desktop. Eventually, after various problems (e.g. the Beebug Serial Link buffer setting kept changing) the whole system finally froze. However, the problem was fully resolved by replacing the batteries. So be warned. (Acorn recommend replacement every 12 months.)

• **MS-DOS Hard Disc Partitions** – The easiest way of getting two hard disc partitions for the PC Emulator is to get version 1.33, which can be downloaded from the Archive BBS or SID. Alternatively send us a donation to our charity pot along with an 800k formatted 3.5" disc.

• **Multi-tasking First Word Plus?** If you rename the !Run file in the !1stWord+ directory to !Boot then First Word Plus becomes multitasking. Unfortunately, you cannot reach the disc, palette or task icons.

• **Noisy Fans 1** – If you have a fan in your Archimedes, you should **not** disconnect it. The reason for this is that the fan will then be blocking up the air vent and so the computer's PSU will operate at too high a temperature. If you want to reduce the noise of the fan, you should either completely remove the fan or refer to the following hint.

• **Noisy Fans 2** – I have looked at the physical design of the Archimedes PSU and done a few temperature measurements and it is my belief that you ought to have a fan fitted and working. So, what can you do to reduce the annoying noise of the fans? Well, we have several Archimidi here and the noise drove us to distraction so, being hardware oriented, I looked at the infernal (sic) fan. Yes, I have found a way of shutting it up, but before you get too excited, allow me to explain a little more.

These fans are most certainly not your average Scalectrix car 12volt motor with a set of plastic

blades stuck on the front! In fact, we couldn't have wished for a better headache – these fans (of which we've even found two different manufacturers so far) consist of a transistor circuit driving a coil assembly that is alternately fluxing a permanent magnet within the plastic rotor. At the same time, the rotor is having its rotational speed monitored by a hall effect switch, busily counting the revolutions! How are we going to slow that down? The answer we came up with was a small transistor circuit of our own that takes the 12v D.C. input and feeds to the fan a suitably pulsed supply that allows the fan to start but not reach full speed. Cunning, eh?!

Yes, we had to make two slightly different versions of our circuit, as the fans were not the same electrically. We'll let you know how they get on as we're still testing them, but there no problems so far. Ray Maidstone.

If you want more technical info, drop Ray a line via the Archive office. Ed.

• **Presenter II Stacked Bar option** – If one of the data sets (columns) contains several NULL (0 or zero) entries then on the display, some of the stacked bar may be displaced vertically downwards. This is easily corrected by replacing the NULL entry with a very small value. E.g., if the data maximum is 100 then a value of 0.1 or 0.05 will do the trick.

• **Second floppy disk drive** – If you want a second disc drive and don't need the a new front fascia for two drives, you can install an NEC 1036A into the Archimedes, which can be obtained for around £50.

You will also need to buy some ribbon cable, power leads and extra plugs for the leads. Don't forget to set the drive to operate as drive 1 and to *Configure Floppies 2 on the Archimedes. A

SPEM The big Italian dealer for Archimedes

presents the **A2048...**

DIY memory expansion to 2 Mbytes for the A305 or A310

It consists of two p.c.b.'s with 16 DRAM 424256 to insert in the sockets of the old 42464 DRAM's. Solder two wires on the bottom of the ARM main p.c.b. (You need to remove the main ARC p.c.b. and must have some electronic experience.)

Available now for next day despatch. Easy to mount in only 20 minutes.

Price for Archive subscribers, including p&p for Europe: £299.99

Price for Italy including Italian IVA and p&p: Lire 750.00

Truecopy program from *SPEM* – a very good disc copier

Copies all discs, including protected ones, for ARC, QL, MS DOS, Atari, etc.
Makes a copy of an 80-track disc, including formatting, in just 65 seconds.
Useful for recovering discs with errors.

Please send order by post or by FAX to **SPEM**

Via Aosta 86, 10154 Torino, Italy. FAX +39–11–280009

Send payment in £ Sterling or Lira. Sorry, no credit card facilities.

Anonymouse

wishes all Archive *readers a very Merry Christmas.*

Stocking fillers:

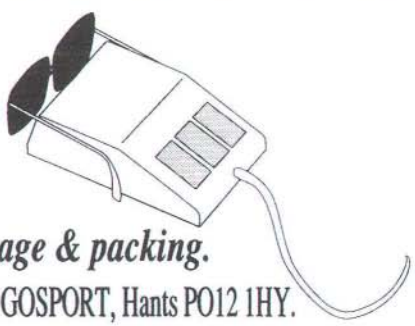
Forthcoming releases: DeskTop Utilities
Hawksridge Labyrinth

DeskGames 1:	Icon Machine, Pair Match & Reversi	£10.00
DeskGames 2:	Icon Match, Pontoon & Yahtzee	£10.00
DeskUtils 1:	DeskTop Diary, Keyboard Info & Module Manager	£10.00
Hawksridge:	Hawksridge Labyrinth	£20.00

Order DeskGames 1 & 2 and get all six programs on one disc for just £15.00

Cheques & Postal Orders to
Anonymouse at the address below.
and VISA customers
ATHENE COMPUTERS
0705 511439

Telephone enquiries: (0705) 511056



All prices inclusive of VAT and postage & packing.

ANONYMOUSE, 2nd Floor, 3 Spring Garden Lane, GOSPORT, Hants PO12 1HY.

Comment Column

• **ArcTrivia re-visited** – I believe somebody at Moray Micro must read Archive! Version 3 of ArcTrivia answers nearly all of my previous criticisms. (Archive 2.7 p 52)

The manual is now properly type-set and has clear loading instructions followed by a breakdown of all game and editor features. Starting the program, which now comes on two discs (program and data files), is now easily achieved from the desktop. The program still re-configures the Archimedes but restores everything afterwards in a tidy fashion. All screens have been modified to use the desktop grey background which gives a RISC-OS feel. It is now possible to load question files – and indeed to play the whole game – without having to touch the keyboard, everything is mouse controlled. New options on the game menu are Pass which gives the opportunity to pass on certain questions, and Exit which will return you to the desktop with configurations restored.

Overall a much nicer feel to the package and if you have the original, a free upgrade is available on return of your original disc. **John Caulfield**

• **CJE RAM upgrade for 300 series** – two views – CJE Micros have had available, for several weeks now, their additional memory boards for the A310. The board itself can contain either 1 or 3 additional Mbytes and it is fitted over the existing RAM chip area of the main board – underneath the disc drive supporting bracket. As mentioned in Archive 2.12 p 3, fitting does not appear to be a DIY job as it is soldered in position: but the additional memory board is apparently compatible with the ARM3 upgrade. Current prices are also somewhat lower than previously quoted being £380 and £600 for the 2M and 4M versions. This includes fitting and collection/return to the customer. If the computer is taken direct to and from CJE in Worthing by the customer, these prices are reduced by £20. Fitting of the board needs to be booked in advance and I understand that there is currently a couple of weeks lead time for this. **R.A.Brown**

What can you say about such mundane hardware as RAM? I recently took my courage in one hand, my Arc 310 and wallet in the other and delivered myself to the Data Store in Bromley for some major electronic surgery. David at the Data Store had been very patient and helpful answering my telephone queries and now was to implant the much needed memory in my machine. The operation went well, a couple of hours work apparently, and whilst the machine was apart, David brought it up to date with field changes. When I collected the machine and parted with the hard-earned I was perhaps a touch disappointed that there was apparently nothing to show for £380. Switching on, however, was a different matter: the memory works perfectly (yes the first thing I did was run MemTest) and transforms use of desktop applications. One thing that did surprise me was that some programs that re-configure to run in 1M were still doing so in 2M. It turned out that these programs were checking page size and assuming a page size of less than 32k meant a 1M machine. (2M machines have pagesize = 16k.) I changed the offending lines and all was well.

Am I pleased with my purchase? Yes, the board appears to be well-made, was competently fitted and functions perfectly. My only gripes, if I have to have some, are that the price of £380 seems a little steep for 1M of extra RAM compared with £100 for a 410. (It is just 1M since, unlike the Watford board, the original 1M of memory is still used.) More importantly, although I am grateful to companies like CJE and Watford, I feel let down at the lack of an 'official' upgrade path from Acorn. Ah well, now to start saving for the next 2 Mbyte. **John Caulfield**

• **Computer Concepts' dongle** – Here are two replies to Michael Lowe's letter (Archive 3.2 p 15), one from someone who clearly has a vested interest and one from someone who does not. Charles Moir of Computer Concepts starts...

We lock our software using our 'dongle' for exactly the same reason that people lock their cars – to stop it being stolen.

We have gone to a great deal of effort to make sure the program protection method is as unobtrusive as possible. I am sure everyone will agree that the alternative forms of protection (which would cost us considerably less) are far less satisfactory for

users. Our discs are **not** copy protected which means back-ups can be made freely and the program can be installed on hard-discs with ease. Nor do we require key-discs, or master discs, which would have to be inserted every time Impression was started.

The dongle does **not** interfere with printing from any application. Indeed, once the dongle is fitted, Impression can be used just like any other program. The only slight disadvantage of the dongle is that it sticks out 2 inches behind the machine. However, we can supply a short ribbon cable (we call it a 'dongle dangle') which allows the dongle to hang down, thus overcoming this objection.

I can think of no serious disadvantage to using this form of protection. It is not good enough to say that protection 'on principle' is a bad thing. There have got to be good, solid, practical reasons to make the complaint legitimate. Clearly, it would be great if we trusted everyone and everyone was honest in return and didn't copy software, but the world is not like that. It is unreasonable to say that, because another product from another company had problems with a dongle sometime in the past, all dongles must be bad.

I disagree totally with the comment that 'professional' software is not protected. On the contrary, a great deal of professional software **is** protected. For example, the three most expensive programs we use (a gate array router, a circuit simulator and Quark Express) are all protected, the former two use dongles; the latter uses disc protection. The Impression adverts are there to tell people what features the program provides and for what price. The dongle does not affect the operation or use of the program, the machine, or other programs and so I do not think it is relevant to mention it in the advertising.

Since the majority of people are not concerned about dongles, I am not worried if the odd individual decides **not** to buy Impression. Most people, thankfully, are only interested in getting the best performance out of their machine and are not concerned about the dongle. As Mr Lowe pointed out, if you don't like it, either don't buy it or, if you buy it and then don't like it, return it. We offer, as the adverts say, a no-quibble money-back guarantee.

P.S. We do sell the dongle to other companies. **Charles Moir, Computer Concepts.**

I just can't understand Michael Lowe's incredibly violent objection to hardware dongles. To say that not mentioning a dongle in adverts is 'seriously misleading' and to be 'very upset' to find that a package used one seems somewhat over the top. (A case of acute 'donglephobia' perhaps?)

Maybe he has had experience with badly designed ones on the PC's. There is such a wide variety of PC compatible(ish) machines that compatibility is bound to be a potential problem, especially with serial port dongles. (I've had problems with an AutoCad dongle interfering with a serial mouse.)

The CC dongle goes on the parallel port and, assuming it is competently designed, (which is a reasonable assumption in CC's case), it should have no effects on 'legitimate' use of the printer port. The only 'compatibility' issue I can see is the extra depth it adds to the machine, which could be fixed with a few inches of ribbon cable to fold it out of the way. (CC's dongle dangle! Ed.)

To say that hardware protection is 'unacceptable' in the professional market is utter nonsense. Why should the professional market be any different from anyone else?

Assuming software needs to be protected (and the amount of resources CC must have put into Impression seem to justify it), hardware dongles are infinitely better that the numerous 'dodgy' disk protections that thankfully seem to be dying out. **Mike Harrison**

• **EMACS** – In Archive 2.8 p 36, there is a review of David Pilling's conversion of EMACS (the PD text editor), which I felt did not really do justice to a great piece of software. The author had not had sufficient time to familiarize himself with the package. I use EMACS nearly every day and have supplied David with new start up files which enhances EMACS's innate abilities as a very powerful text processor indeed. The file is fully documented, including explanation of the macro language used and a number of hints and tips for Archimedes EMACS users. I think David is doing a tremendous job in porting C programs across to the Archimedes. **Jonathan Barnes, Watford**

• **Hard drive speed** – Some confusion seems to have crept in over SCSI speeds. ST506 has a fixed rate of 5 mega**bits** per second. Synchronous SCSI (not used by any of the current Archimedes SCSIs) can do 4 mega**bytes** per second and asynchronous (i.e. 'normal') SCSI about 2 mega**bytes**/sec.

The main reason for SCSI drives being generally faster than ST506 is that as the controller and data separator are in the drive; there is no inherent limitation on the data rate coming off the disk, so most SCSI drives use RKK or other higher density coding schemes, sometimes in combination with non-standard disk rotation speeds. **Mike Harrison.**

• **Interdictor** – I am familiar with commercial flight simulators and can assure you that Clares' Interdictor compares very favourably. The speed and realistic simulation are extremely impressive. Considering the obvious difference in cost between this 'game' and the current commercial flight simulation equipment, the brilliance of Interdictor is all the more remarkable. **Peter Warrington**

• **Interdictor** – I read what seemed to be a very low-key review of Interdictor by Richard House and was astonished that he did not share my own enthusiasm for this game which is truly a master-piece of programming. I happen (from boyhood reading and an interest in the subject) to know a little about the tactics of fighting aircraft and Interdictor's brilliance lies, for me, in the fact that the machine 'flies' the enemy aircraft in realistic battle simulations against the player using correct manoeuvres and intelligent best tries against the human pilot. It does this in a true 3D environment with solid colour graphics obeying all the laws of perspective and, as far as I can tell, using real world performance parameters.

The aircraft that the human player flies is very accurately simulated and all those features of 'real' aircraft (stalls, banks, dive-brakes, loops, rudders and aileron controls, weapons etc) are beautifully incorporated into an extraordinarily difficult game scenario. There are many delightful touches that add to the realism of the game (too many for me to list and some only manifesting themselves after many hours of playing!) such as aircraft being visible from the cockpit taking off to intercept the human player, marvellously realistic graphics and sound effects (I play as often as I can though an external amplifier and two large speakers – I haven't asked the neighbours what they think of this!) and an overall game strategy that I still have not cracked after about seventy hours of play.

I read the enthusiastic reception of E-Type with raised eyebrows; this simply cannot compare with Interdictor; it is in a different and very inferior league and I was bored with it within ten minutes of playing it. Fortunately, my two children like it – they are aged 7 and 5! As I have managed to capture the fourth airfield and flown under the bridge upside down, as well as through it, I consider myself to be a bit of an expert on the game and all I can say is that I find it exciting, enthralling and enjoyable.

I must say in conclusion that I have absolutely no connection with Clares in any way except as a happy consumer of their product! It is this kind of top quality software that will ensure the success of the Archimedes and all those connected with it. **Paul Whitehorn.**

• **Minerva's Sigmasheet Warning** – Following the article in Readers' Comments Archive 3.2, Minerva would like to issue the following warning to Sigmasheet users: *"The use of the procedure mentioned in the article will mean that Sigmasheet will not be correctly initialised and the result will therefore be very unpredictable. Minerva wish to make it clear that they do not recommend following the procedure outlined as it will probably lead to loss or corruption of data.*

Whilst writing this reply, we should also like to comment regarding the legal aspects of following that procedure mentioned. Following the procedure is not directly in breach of copyright if it is only done on the machine onto which it has been installed. However, use on further machines will require a site licence which is available direct from Minerva Software and this will then clearly keep the users on the right side of the law." **Nova A. Fisher D.M.S., M.B.I.M., F.I.A.P., F.Inst.S.M.M.**

• **Multi-Tasking First Word Plus** – Acorn have never planned to debug the GST's original, not even in the RISC-OS version! I have seen a pre-release version of the new First Word Plus and have already found the following drawbacks:

– silly formatting when, for example, you delete upwards and backwards
– ~V (case swap) doesn't work when highlights are set but not yet processed
– Insert isn't set on start-up
– nor is word-wrap. The first long line you enter just goes on and on until you are told it is more than 160 characters and consequently too long!

I'm not sure that it is yet worthy of the Archimedes for reliability, nor am I entirely happy with the user interface. Some people just want to print out at a single key press, rather than RISC-OS-ify the files. At any rate, I am still in two minds and would welcome comments from others. **Mark Sealey**

• **Oak 45Mbyte internal SCSI** hard disc drives – After much thought I decided to replace the full 20M Winchester on my A440 with an Oak 45M SCSI drive. It cost only slightly more than a Rodime ST506 drive of similar capacity, but I reasoned that the new drive was faster and that the SCSI card would make future expansion easier.

The drive arrived two days after I posted my order to NCS – no complaints there. The drive itself was a Seagate ST 157-N and the SCSI podule appeared to be well built. Everything needed for installation, other than a screwdriver, was included. The installation was straightforward, following the instructions from Oak, but they assume that you are fitting the drive into a computer without a hard disc, and no instructions are given for removing the existing drive.

If you are replacing a hard disc, it is not necessary to replace the Archimedes sticker with Oak's, nor do you need to use their LED to show when the disc is running. Cut off the leads from the LED already installed on the Arc, and make safe the ends leading to the computer with some sleeving or insulating tape. Cut the wires leading to the LED from the new drive and join them to the wires from the original LED. Cover the join. In my case, I had to join black wires to red, so either Acorn or Oak used the wrong lead colours! If, when you've finished, the LED doesn't light, just reverse the connections – it won't be harmed by being connected backwards.

Installation took about 30 minutes; I powered up the Archimedes and was rewarded with a hung machine – <shift-break-f12> gave me a supervisor prompt, which allowed me to reconfigure as necessary (and as detailed), then <ctrl-reset> and I got a desktop with a SCSI icon.

Moving my original 20M of data was more difficult and users may find my experience useful. Originally, I had backed up my hard disc using Clare's Toolkit Plus but this program will only work when both floppy and hard disc are under ADFS so I had to try something else.

I re-installed my original hard disc (so I had to unmount the new one from the case, and sit them both on their sides). To supply power it was an easy job to solder four wires between the power connectors on the new and old drives. I used four different coloured wires, and CHECKed and RECHECKed polarity before powering up. *Configure HardDrives 1 enabled the old drive, and I used the desktop to copy the entire contents of the old disc to the new.

The new hard disc was already formatted and contained a formatter – this was also supplied on a floppy. Included on the hard disc is information about accessing the SCSI system, which is not in the manual, as well as detailed help with installing a PC emulator on the SCSI drive and arranging boot files.

After about two hours I had the system up and running. The PC emulator needed a *KillADFS command issuing before it worked with my SCSI hard disc and my boot files needed altering to change the path name supplied to Filer_OpenDir, which insists on full path names. I didn't change anything else on my hard disc and all the applications worked perfectly.

(The information about booting from the hard disc, in text files supplied by Oak, was accurate but incomplete. As with ADFS hard discs it is possible to put your boot files in an application called !Boot, with its own icon. Using *OPT 4 2 and *Configure Boot will cause this application to run in the normal way. This means that it is possible to avoid cluttering up the root directory with all your boot files.)

In use, the new drive is slightly quieter than my old one, and marginally faster. A random access benchmark shows a speed gain of 25%, a benchmark loading large blocks of data shows a gain of around

50%. It is self-parking (hurrah). The new drive takes a few seconds longer to get up to speed than my old one, but it has still reduced the boot time of my system from 35 seconds to 28 seconds.

I have no complaints at all about the drive and would recommend it as a first drive or as a replacement one. The SCSI system is effectively transparent to the user.

However, Oak computers could improve the package by adding two small, cheap items and by providing a more informative manual, especially for those upgrading. The first item would be a lead with plugs for intercepting the existing 'H/DISC' LED wires and powering it from the new drive, to avoid replacing the old one or cutting and re-connecting it. The second item would be a '1 to 2' power lead, allowing an old and a new hard disc to be powered at the same time for file copying. **Sean Kelly, Hanwell**

Oak SCSI's – The other side of the coin – Ronald Alpiar purchased an Oak SCSI drive and had considerable difficulty getting it working, especially with the PC emulator, due to the totally inadequate documentation we mentioned in an earlier issue. Indeed, he gave up in the end. However, we have not printed his comments in full because they relate to the 9-page preliminary documentation that was provided with the drives. They are now provided with a 45 page manual which seems comprehensive but we await Ronald's comments as to whether it is understandable.

When I received my copy of the new manual, my first move was to check whether they had adequately explained how to get the PC emulator working with it. Horrors! There is nothing but a single sentence about the use of the PC emulator but if you read it, it refers you to the read_me file on the formatter disc. Oak have provided an explanation of the problem and how to get round it plus a run file to make it easier in practice and a program to modify the emulator itself to suit the SCSI interface. (Also on the disc, for the technical buffs, is a comprehensive list of the SWI calls.) **Ed.**

• **Premier** from Circle Software – Several months ago you said there was a copy of Premier available for review but we have not yet seen any sign of a review. I am surprised that such a novel application has not been thought worthy of a review in Archive. **Chris Searle, Kent.**

Well, we did get a review written but as it was rather uncomplimentary, so I sent it to Circle to check that there were no factual errors that would represent unfair criticism. Circle said, amongst other things, that their RISC-OS version would be available soon and that they would rather have **that** reviewed than the original version. After several weeks of waiting, I asked them what had happened. They replied that they had decided, on purely commercial grounds, that Archive was not an appropriate place for them to advertise so they would not be sending a review copy after all and they wanted to cancel their series of adverts. (They had booked one year's advertising). I am afraid that, on principle, I am not prepared to buy Premier in order to have it reviewed, but if anyone has a copy and wants to make any comments, please send them in (on 640k disc with a paper copy, preferably). Thanks. **Ed.**

• **The demise of Archimedes?** – I do not think it should go unremarked that 1989 is a significant year, being the 2200th anniversary of the death of Archimedes in 212 B.C. (Remember, that there was no year '0'.)

It was a tragic event. Archimedes lived in the Greek city of Syracuse which had been under siege by the Romans for two years. When they finally broke through, Archimedes did not notice, being involved in a mathematical proof at the time. Suddenly a soldier came upon him and ordered him to accompany him. Archimedes refused to move until he had worked out his problem, whereupon the soldier flew into a rage, drew his sword and killed him. He was 75 years of age. Dr Jonathan Puttock

• **Watford 20M hard drive kit for 410** – Watford Electronics performed uncharacteristically badly in the support kit that accompanied a Miniscribe 20M drive. The drive was fine, but the bracket holes were drilled inaccurately and the screws provided were too long by several millimetres so one of them would have hit the shock mounted drive casting.

After several phone calls, a fax to Mr Jessa and quite a long time period, a second fixing kit appeared, with brackets that would work, but exactly the same screws. A second round of phone calls/fax produced a further set of brackets/screws. These screws had been crudely cut down with a hacksaw, with no finishing off, so they didn't fit until they had all been smoothed off with a file. We still had to fit a washer under the one screw to prevent it fouling the casting.

The instructions were not for a 410 (with the controller on the main board) but told you how to connect to a podule controller. No mention was made of the small flying lead/plug in the front of the drive, but leaving this unconnected seemed to work. (Extra drive busy light?)

Turning on the system and setting hard-drives 1 revealed that the drive wasn't formatted. (The manual said it would be already formatted.) Then the final blow was that the supplied WFORM program informed you it wasn't formatted and then stopped! Fortunately, the HFORM program on the RISC-OS Support Disc did the trick and we now have a fully operational hard drive. But only 2 out of 10 for Watford!! **Tim Saxton, Liverpool.**

Watford have noted these comments and are improving their products accordingly.

• **Hard Disc Podules** – A number of people recently have been buying the Acorn hard disc podules in preference to the Computerware ones. This is presumably because they are cheaper, but please be aware that the Computerware podule has the advantage that if you want an external hard drive, it just plugs into the back of the podule. The Acorn card, on the other hand, requires piggy-back cabling and, because the sockets are on the p.c.b. itself, you have to take the lid off the computer to unplug the external drive. **Ed.**

• **How do I upgrade an (old) A440?** Those of you with the old A440's may be wondering how you can put new life into the old beast and how much it is going to cost you. Let me make a few suggestions: (All prices quoted are the current Archive prices inc VAT and UK carriage.)

MEMC1a will give an extra 10% speed but costs £74 and is a dealer upgrade as it needs a special chip extractor tool and involves soldering.

ARM3 will speed up the machine 2 – 3 times but will set you back £650 and is an upgrade only done by certain dealers (including N.C.S.)

Extra disc storage capacity. I doubt whether anyone would do a trade-in for your old (slow) 20M drive, so you either ditch it and replace it with a bigger ST506 drive (Computerware 40M/410 @ £420 or 47M/410 @ £510) or put in a SCSI podule and an internal SCSI drive (Oak or Lingenuity 45M/310 SCSI's @£545 or bigger – up to 200M/310 @ £1355 – see price list) drive or keep the 20M and add an external drive – either an ST506 or a SCSI. If you want an external ST506, such as the Computerware 60M drive @ £740, you will need to specify that it is for an old A440 because you will need a special piggy-back connector since the Acorn controller does not provide enough sockets on the board. Also, you will not be able to disconnect the drive without taking the lid off the computer. An easier alternative would be an external SCSI such as the Lingenuity 45M/A3000 @ £640 (or Oak 45M @ £710) which is a simple plug-in job which can be disconnected easily if you need to move the computer.

It may be worth remembering that a brand new 440/1 equivalent (i.e. an Archive upgraded 410 with 47M drive), which has the new MEMC1a as standard, would cost you £2180 with the new lower prices of ram. If you could sell the old A440 second hand... ? (Feel free to use Archive small-ad's but **NCS cannot do trade-ins**. Sorry.) **Ed.**

• **Material for Archive** – There are lots of new folk providing material for Archive which is great but to speed up production of the magazine it would help if people kept to a certain standard presentation of information. The basic requirements are:

a) Use a 640k disc (L format). This is because I cannot find an easy way to link Mac to Archimedes, so I use a Master128 with a 3.5" drive and 'BBC to Mac' which is an excellent piece of software.
b) Provide the text in ASCII format with a blank line between paragraphs. So, if you are using First Word Plus, switch WPmode OFF (edit menu) before saving.
c) If you want the disc returned, please put your name on it.
d) Provide a printed copy so that we can check the layout and any 'funny' characters.

Notes for reviewers – If you are writing a review, bear in mind the following questions which are the sorts of things readers want to know other than the obvious things like, Does it work? and Does it do what the adverts claim?

– Which machines does it work on?
– Is it RISC-OS compatible?
– Does it use multi-tasking?
– Is it copy protected and if so, how?
– Does it need any extra hardware?
– How much does it cost?
– Who distributes it?

Again, many thanks to all those who contribute to make Archive what it is. We are getting a bit short of hints & tips, so send them in. (Mind you, many of the hints are being fed to the editors of the different specialist sections.)

Don't be put off by the thinking that your hint must something which everyone knows – if it is something which you stumbled upon and which bad life easier in some way, it may well be of use to other readers. Similarly, just because the snippet of information you have is actually 'in the manual', it can still be just as important as a completely original hint. After all, how many of us actually read the manuals?!? **Ed.**

• **STILL using Macs for DTP?** – Several folk (including Charles Moir from CC!) are asking when we are going to do the decent thing and sell our Apple Macintoshes and prepare the magazine on Archimedes computers. Sorry, folks but I've grown so attached to my Mac II with its 19" screen that it would take a lot to make me change over to Archimedes. Even an Oak 20" multi-sync with an overscan mode couldn't offer the kind of high resolution environment I've got used to.

On screen at this very moment, with space to spare, I have the Finder (filing system), the Archive Factfile in MS Word, a calculator, the Price List in Pagemaker (though I have to put that away if I want to send a fax) and an outline processor called Acta which I am using to compile all the bits and pieces like Comments, H&T, Contact Box, Products available, etc. Also, Adrian and Ali, on separate Mac Pluses, are able to access, via AppleTalk cables, any of the files on my drives, so the three of us can all be working on the magazine at the same time, and any of us can output to the LaserWriter whenever we want. When this kind of sophistication is available on the Archimedes, we'll think whether the financial cost and time overheads of starting the magazine layout again from scratch would be justified.**Ed.** A

Credit where it's due

• **IFEL** have done well for Chris Hill. The backplane he ordered arrived very quickly but was duff. Ooops! IFEL sent out an Acorn two-slot to keep him going while the duff four-slot was returned for checking and eventually replaced. "Excellent service, provided cheerfully!"

• **Atomwide** get the thumbs up for good service from Peter Beaumont-White. Martin Coulson from Atomwide actually went round to Peter's house to fit his ARM3 upgrade. The ARM3 itself is also well received: "moves like butter off a hot knife", says Peter. Ronald Alpiar also gives them an accolade for service above and beyond the call of duty. Martin correctly diagnosed Ronald's hardware problem and then went on to give him help with a problem unrelated to any products produced by Atomwide.

The danger with printing comments like this is that people will then ring Martin with every computer-related problem under the sun and Atomwide's own business will grind to a halt! Please try to remember that although folk like Martin are very helpful when you have a problem, they need to earn a living. Remember that Archive offer an £8 Telephone Technical Help Service and we have been known to respond to people who say "I'm not yet on your T.H.S. but I was just about to send off an £8 cheque, honest!" – Remember, too, that Beebug offer, according to their adverts, 'Free help from our technical support team'. A

Contact Box

• **Acorn Archimedes User Club, Deutschland** – This club hopes to promote the Archimedes in Germany. If you are interested, you should contact Stefan Fröhling, An den Klippen 23, 5960 Olpe (West Germany).

• **Elements** is the independent Euclid User Group. The annual subscription is £10 and includes four discs that are sent quarterly. To subscribe, write to Richard Molyneux, Elements, 42 Keswick Road, Great Bookham, Leatherhead, Surrey, KT23 4BH (make cheques payable to 'Ace Computing'). The first disc contains: QRT a public domain ray tracer, a conversion program from Euclid files to QRT, a number of Euclid library pictures, an animated film of the French flag, general public domain software, plus hint, tips and information. A

INVESTIGATOR 1.02

£24.95

THE SERIAL PORT

Investigator is a disc utility program which is compatible with the Archimedes 300, 400 and 3000 series using either the Risc OS or Arthur 1.2 operating systems. *Investigator* can perform the following operations on discs of many different formats:

- Examine the format of the disc in detail.
- Edit the data stored on the disc.
- Make backup copies of the disc.
- Store the entire disc as an ordinary ADFS file. This may allow archives of several master discs to be stored on a single backup disc. The disc may then be transmitted to a remote site using a modem and a communications package such as ARCterm.
- Fully WIMP front end.

The Serial Port, Burcott Manor, Nr Wells, Somerset BA5 1NH
Voice (0749) 72234 Data (0749) 79794 (300–2400 baud)

Please send me ☐ INVESTIGATOR 1.02 at £24.95, cheque, PO enclosed.
☐ Data Sheet

Name

Address

Computerware

New Product Release

Archimedes A300 RAM Expansion Board.

In line with our continued commitment to the A300 user Computerware are proud to announce their new RAM expansion board. The dealer installable unit will allow the A300 to be expanded to 2 or 4Mb without the loss or relocation of the original on board RAM. The A300 can be expanded to 2Mb with our basic 1Mb board, (provided that the A300 already has its full complement of 1Mb RAM on board) and to the full 4Mb with our further 'plug in' 2Mb upgrade. Equally our expansion board can be supplied as the full version initially. The expansion unit is built to our usual high standards on a multi-layer board. ZIP RAM modules have been used to achieve the high density of packing required to allow the unit to be installed out of the way. Full compatibility with the ALEPH ONE ARM3 upgrade is maintained to give real power, at your fingertips.

The A300 RAM expansion board will be available shortly, orders are being treated as first come, first served.

Placing an order

Demand for the upgrade is very high but you can place your advance order now by sending a deposit of £25 to reserve a place in the queue. The Ram boards are 'plug-in' but still need to be installed by us due to the special tooling required. As such you will be required to send us your Archimedes when your place in the queue is reached.

A300 RAM 2Mb price £399 inc VAT

A300 RAM 4Mb price £699 inc VAT

Prices include installation and courier return of your Archimedes. Full details will be sent with notification of receipt of deposit. Further information available on request.

Hard disc drives

Computerware hard disc drives offer a fully Acorn compatible product manufactured to our high standards. Our drives are available for all the Archimedes computers, A300, A400 and A3000. A300 and A3000 versions are supplied with controller podule capable of accessing two drives, one internally and one externally through specially mounted connectors. All our drives come complete with all parts required to fully install the system, including cables, screws, metalwork etc. All our drives have an access time of less than 28ms and generate very little noise.

Hard drives for the A300

20Mb with podule £435 inc. VAT *
40Mb with podule £620 inc. VAT *

Hard drives for the A400

20Mb £229 inc. VAT
40Mb £435 inc. VAT
50Mb £574 inc. VAT
72Mb £1149 inc. VAT

Hard drives for the A3000

20Mb £459 inc. VAT
40Mb £649 inc. VAT

* *Backplane and fan required.*

Computerware 20Mb hard drives are fully autopark. Quality Seagate and NEC drives are supplied as standard with a 2 year warranty on 40Mb drives.

More New Products

Further products available from Computerware include the following;
A3000 1Mb RAM upgrade £159.85 inc. VAT
A3000 3Mb RAM upgrade TBA
A3000 Colour TV Modulator £29.95 inc. VAT
Archimedes external floppy disk buffer £24.95 inc. VAT

Watch this space for more new products

All Computerware products are covered by a 1 year guarantee.
Our prices include free overnight delivery nationwide.

Computerware Research Ltd.
Units 9/10/11
Livestock Market
Hall Road
Norwich
NR4 6DW

☎ 0603-507799

DTP Column

Ian Lynch

As this is the first dedicated DTP section in Archive, I had better spend the first part of it saying who I am and what I intend to do. My name is Ian Lynch and I am responsible for aspects of scientific and technological education and certain administrative duties at Britain's first City Technology College, Kingshurst. The CTC has facilities for DTP on both IBM PS/2 and Archimedes computers and I have so far used Pagemaker 3.0 (a little), Wordperfect 5.0 a lot, Newsmaster 2 (a little), Acorn DTP and Impression (quite a bit). I should also be getting my "paws" on Beebug DTP and Tempest from Clares before too long. I would describe myself as an enthusiastic all-rounder with computer technology and hope as much to co-ordinate the many "pearls of wisdom" that you out there can supply, as pontificate myself from the keyboard.

What price Wordperfect 5?

Having used ADTP and Impression for the past month or two I have been impressed with them compared to their PC counterparts. Wordperfect 5.0, which claims to bridge the wordprocessor/DTP gap (presumably because graphics can be imported and you can type into columns – none too easily I might add!) is completely outclassed by either as far as ease of use is concerned and by the fact that WP5.0 is not WYSIWYG (what you see is what you get). WP5.0 can be used under OS/2 in a multi-tasking environment but the machine used would have to be upgraded to about 4M.

or Pagemaker?

Pagemaker on the other hand not only costs more but requires a hard disc, a printer with font cards, etc, and is not suitable for simple wordprocessing even on a 386 based machine. The problem with a lot of PC software is that it assumes that the user has a hard disc and many other resources which can cost considerable amounts of money in addition to the standard set up. Acorn DTP realistically requires 2M of RAM or a hard disc (or both). Impression is fine on a 1M machine but will benefit from more space and a hard disc. The version I have still requires some work to finish it off.

Newsmaster 2?

Newsmaster 2 runs very acceptably under PC emulation and is quite popular with students. However, it is a lot less flexible and professional in its approach than the others mentioned. *(I have had a copy of NM 2 in stock for ages. Would anyone offer me £40 for it? Ed.)*

Free DTP!

One piece of software you should not overlook for DTP is !Draw. Quite satisfactory results can be obtained by using this on its own or with !Paint and !Edit, provided you do not mind being restricted to single page production. In fact, I recently had to draw up a table of records for the British Power-lifting Association and found it easier to do directly using !Draw than with either Acorn DTP or Impression. Importing !Edit files in columns and with font information is a little more tricky but is documented on page 117 onwards of the User Guide.

Coping with 1 Mbyte

Finally, a few tips which may help those struggling for memory on a 1M machine. For printing, Mode 0 will save you 60k of memory than Mode 11 (suggested by P. J Burn, Archive 3.1) – leaving the screen useable but in monochrome. If you want to scroll around the document, it is best to have as much font cache as possible. However, before printing, reduce the size of the edit window (so that the screen does not need to be redrawn but you have enough space in which to click the pointer to call up the menus) and reduce the font cache to 24K using the task manager. This will hopefully leave some printer workspace which considerably speeds up hardcopy production. Also avoid opening directories with lots of icons in them prior to using DTP as these will fill the RMA needlessly.

It is probably best to do a hard reset prior to getting started with any software for a new work session, ensuring memory is as clear as possible. Load a printer driver (only if you intend printing this session) then the application. If all this fails to grab your imagination, consider a memory up-grade! Impression is a lot less of a problem in this respect but the techniques explained will still be useful in

speeding up printing. I still haven't got a firm release date for a fully debugged version of Impression with all features implemented.

Please write to me with any suggestions as to areas of help, debate, discussion or further interest arising from what I have written, or anything else. Indeed if I get anything wrong don't hesitate to put me right, I'm still learning too! I hope to cover video digitising and colour DTP in future issues as well as any other methods related to DTP. A

Small Ad's

• **!BackUp** – An Archimedes disc copier that copes with most Archimedes discs. RISC-OS only. Just £7 inc p&p. Stuart Halliday, 35 Pinewood Park, Deans, Livingston EH54 8NN.

• **A310 base** + RISC-OS as new, boxed with manuals £649. Phone Alan on (061) 236 5579.

• **A310 base** + RISC-OS with 3.5" drive still under warranty, as new, boxed with manuals, £600. Telephone Mr Phillips on (0942) 717454.

• **A310 base** + RISC-OS with a 4 slot backplane, CC ROM/RAM Board (88k RAM), and second disc drive for £795. Telephone Keith Hodge on (0244) 550803.

• **A310 base** + RISC-OS with Acorn 2-podule backplane & fan. Boxed with all manuals & system software £650. Phone (0708) 763407.

• **A310 base** + RISC-OS, Beebug external 5.25" drive interface, TWIN, and Zarch, £600. Comes with original packing and manuals. Contact Mr Wakefield on Stafford (0785) 714913.

• **A310 base** + RISC-OS, second 3.5" drive still under warranty, as new, boxed with manuals £600. Phone (0942) 717454.

• **A310 base** + RISC-OS. Boxed with manuals and system software. Excellent condition £600. Atomwide 4-slot backplane £30. Phone (0744) 54493 (Merseyside)

• **A310**, mono monitor, PC Emulator, Ext drive interface, £650. Mr Gallagher on (01) 986 4442.

• **A310M** colour + RISC-OS and software, as new £800 o.n.o. phone Mr G.Latham on (0952) 613619.

• **A310** colour + RISC-OS, 2nd 3.5" drive, I/O podule, battery-backed CC ROM podule + 32k ram and much software. £990 o.n.o. phone Iain on (0925) 66889.

• **Archimedes artist required** to draw sprites/locations for new, mega adventure/interactive fiction game. Will get paid! Lots of work! Contact James Perrott at Burnham House, Lord Mayor Treloar College, Froyle, Alton, Hants. GU34 4LA.

• **CC ROM podule** and Conqueror game for sale. Offers for either to John Ward on (01) 540 8461.

• **I/O podule** (Acorn) £42; Realtime Solids Modeller £39; Artisan £17; Gammaplot £29; Hearsay £29; Armadillo "Specire" Fourier (sound) software £20. All perfect condition, uncopied, boxed with manuals, all 1/2 price, just not needed any more. John (031) 667 1011 ext 4364.

• **Interdictor** £21, Minotaur £5, Space Trader £6. Ring Alistair on (0482) 634852 after 6pm.

• **Logistix £50** o.n.o. (have moved to PipeDream). Contact Andy on (0703) 631174.

• **Micro Prolog** and four text books (all you want to know) £55. Call Jim Davis on (0543) 361389.

• **Software Developers Toolkit** (unregistered) £45.00. Public Domain and Shareware for use with PC Emulator, 6 disks with a variety of programs on them £12.50. Contact Les on (0245) 72572.

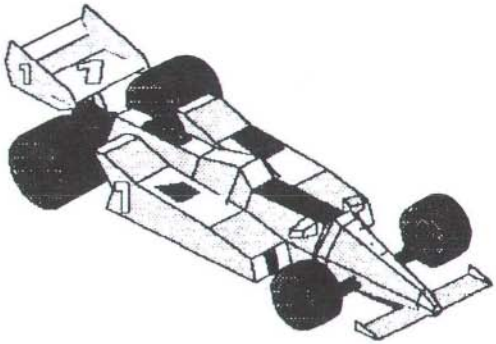
• **Twin Editor** £20, Toolkit Plus £32, Beebug serial link £12, DFS reader £5, CC ROM podule £35, twin 5.25" drive with psu £95. Paul on (0293) 515201.

• **Watford realtime digitiser podule** and Lingenuity Colour Convertor podule, together with all manuals, software, cables and demo discs. All for £355. Marc Caplan on (01) 954 6367.

• **Watford video digitiser**, brand new, unused – doesn't work with A3000. Bargain at £180. Alan Booth on (0494) 721895, evenings and weekends.

• **Z88 with case**, 128k RAM pack, mains adaptor, Archie transfer s/w and connecting lead. With boxes, as new. All for £190. Phone Richard on (01) 856 1760. A

Ace Computing



RISC OS EUCLID

The only multi-tasking 3D graphics package for the Acorn Archimedes

Completely rewritten for Acorn's new operating system, RISC OS Euclid is a **fully interactive, multi-document 3D graphics and animation system**. Designed to be simple for the beginner to get to grips with, it has an **intuitive, icon driven, single window interface**. Its features include:

- Object orientated data structure
- Curved surface primitives
- Cameras and lights
- Grid locking and measurement facilities
- Import and Export to Draw

"...ideal for use at home and in schools, colleges and industry...inexpensive, graphic, colourful and limited only by imagination" – A&B Computing, Oct '89

EUCLID - Explore a new dimension! Price: **£70**

Also available – RISC OS Mogul (animation add-on) £20

(all prices include VAT, P&P)

Send cheques to: Ace Computing,
27 Victoria Road, Cambridge
CB4 3BW. Tel: (0223) 322559.
Or from your local dealer.

Ace Computing

Presenter II

Basil Davis

The original review of Presenter (graphs & charts presentation package) was somewhat ambivalent. (Archive 1.11 p46) However, Brian Oliver (2.5 p4) had rather more complimentary remarks to make. There were a number of shortcomings – only 9 columns and 25 rows for data, text labelling was somewhat rudimentary and the built-in printer dumps did not handle multi-sync screens satisfactorily. The graphs could not be manually scaled resulting in some instances in the data points being cramped at one end of the scale. These finished graphs were saved as sprites so that any printouts had a maximum resolution of 90 x 45 giving very jagged curves. Despite all this, the product was good value for money and this reviewer found it extremely useful for the production of high quality colour slides.

The recent upgrade, Presenter II, has corrected most of these problems. (It also costs more!) It is RISC-OS compatible, uses many of the desktop facilities and has also been compiled (using Dabs ABC). This and the use of the FPE has improved the drawing speed and accuracy. Because of the use of !System modules (on Application Disc 1) it is necessary to copy the contents of this directory (and the Modules sub-directory) to the !System directory on your Presenter II E-format back-up disc (The supplied master disc is not copy protected). Hard disc users, who should already have !System (and !Fonts) in the root or Library directories, simply copy the contents of the master disc into a new directory.

Getting going

Installation follows standard desktop procedure. It is suggested that the applications memory is set to at least 288K. Once the Presenter II icon is resident on the icon bar, data files can be loaded from the Graphs directory viewer, either by double clicking or by icon dragging. The Graphs directory contains five sample data files covering the various graph or chart types. The original Presenter data files are not compatible and must be converted using the supplied application, !Pres1_2 (after installation on the icon bar). This operation is relatively painless consisting merely of dragging the data file icons, from their directory viewer, onto the Pres1_2 icon on the icon bar and re-saving. The conversion is one-way so if you want to keep any of the files in their old format you should save the converted ones in another directory or on another disc.

Documentation

The Presenter II User Guide, much glossier and better finished, is along the lines of the original one, but is greatly improved with the illustrations resembling those in the Welcome Guide. A comprehensive tutorial is provided although the system of Main menu and 'slide-off' sub-menus is very easy to follow anyway. Comma Separated Value files are supported and can be selected from the FILE option of the main menu. These can be imported from spreadsheets such as Pipedream 3, word processors or !Edit. A second application on the disc – !MakeCSV – converts text files into the required type &DFE. In conjunction with this application there is also a short Info file about LF's and CR's.

Alterations & improvements

Previous users of Presenter will find that, on the surface, little has apparently changed. However there have been many alterations and improvements.

The number of columns (data sets) has been increased from 9 to 26 (A-Z) and the rows (data items) from 25 to 55. The old method of data entry has been retained where a particular cell is selected by single clicking but the actual data is typed into a value box near to the top of the worksheet. Pressing <return> loads the value into the selected cell. This poses problems where it is not possible to see the Value box and the cell at the same time. You just have to set 'Cell movmt' (Main menu) to 'On' and either 'Down' or 'Right' giving automatic cursor movement to the next cell and type the data into the value box. The guide says that 'Cell Movmt' default is 'On' & 'Down' but on the reviewer's copy it was 'Off'. If you wish to alter the contents of a particular cell in the lower or right-hand part of the worksheet you will have to move the whole worksheet to and fro to check the correction.

Graph types are as before with additions. The X-Y line graph type is now a scattergram with the option of five different data point types – circle, square, triangle, cross and point. These can also be in different colours giving a very wide range of point differentiation. Scattergrams also have a 'line of best fit' (linear regression) option. Separate lines can be fitted to individual data sets or the option can apply to all the data. Bar charts have an extra option – Stacked Bars – although this cannot be used with the 3-D or Grid options. Pie charts can now be 3-D with the choice of 'exploding' one selected segment.

Options for the graphs or charts are now combined in one window with a setup resembling that of the desktop's configure with dialogue boxes and the familiar blue asterisk denoting that a particular option has been enabled. All the options for a particular type of graph e.g. margins,line thickness, graduation values, etc can now be set up at the same time. If mode 16 or 17 is used it is possible to show the graph and option windows side by side and watch the changes being made.

An important new option is that of manual scaling allowing a restricted range along one or both axes. Minimum and maximum values can now be entered for the X and Y axes giving much greater control over data positioning.

The working mode is now that of the desktop and is changed in the usual manner from the palette icon menu. Lingenuity supply two extra modes, (50 & 51), on the disc, but give no information about them. Mode 50 is apparently similar to mode 16 but with only 2 colours and mode 51 gives a 'Not suitable for WIMP operation' error message.*

Finished graphs or charts are saved as !Draw files enabling them to be edited in !Draw. This removes one of the problems encountered in the original, namely the difficulty of adding additional text, changing font styles, scaling or rotating. With line or bar graphs, the colours can be converted to dot-dash patterns making for easier identification when printing out on a standard printer. This is now easily accomplished by using the RISC-OS printer drivers. A standard Epson printer can manage 240 x 216 dpi (Quad graphics) and a laser printer 300 dpi. The resultant printouts are of high quality. The !Draw files occupy much less disc space than sprites and can easily be incorporated in DTP, Pipedream 3 or Logistix. The Guide warns that with 1 Mbyte machines you will probably have to exit from Presenter II before starting !Draw.

Conclusion

The reviewer found the product to be greatly improved, capable of producing professional results and good value for money. Presenter II is available from Lingenuity (£39.95+VAT) or through Archive (£42 inc VAT). If you already have Presenter and found it useful don't hesitate to get the upgrade for £14.95 +VAT – you will like it even more.

(*The problem with modes 50 & 51 was resolved during a visit to the Lindis stand at the Computer Shopper Show. Apparently, I had one of the first releases of Presenter II and this is now fixed. The two new modes are PD overscan versions of modes 12 & 15 giving roughly 1500 x 1100, i.e. 750 x 275 in the graphics mode. Text is 96 x 34 although you would have trouble reading the top line. In either of these modes you can have the Graph display and the Options menu side by side so that you can watch the changes taking place.) A

Wanted

A Competent Archimedes programmer for software development.

The work will be interesting and rewarding.

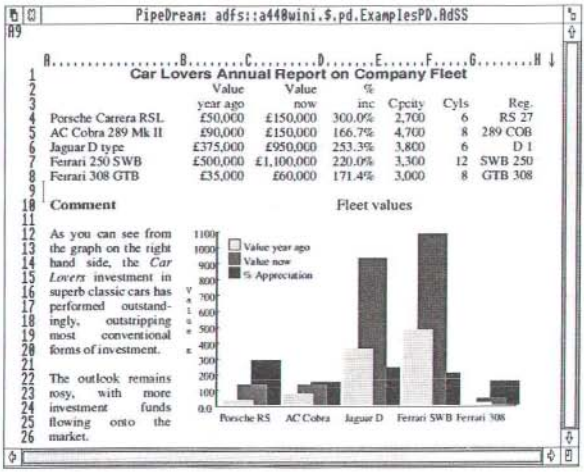
The successful applicant will be keen, self-motivated and preferably live in the South West of England.

Experience with hardware would be an added advantage.

Please write (no phone calls) giving full details to:

Mr J Smith c/o Norwich Computer Services, 18 Mile End Road, Norwich NR4 7QY.

PIPEDREAM 3



PipeDream 3 breaks down the barriers between word processor, spreadsheet and database. You can include numerical tables in your letters and reports, add paragraphs to your spreadsheets, and perform calculations within your databases.

Based on PipeDream 2, the best-selling integrated package for the Archimedes, PipeDream 3 has been completely re-written to take full advantage of RISC OS - if you can use RISC OS, you can use PipeDream 3. It is fully multi-tasking and multi-windowing, so you can work on many documents at once and instantly move information between them. And since PipeDream 3 can automatically load and save most popular file formats, including VIEW and First Word Plus, switching to it from other programs has never been easier.

Power, flexibility, speed, ease of use. PipeDream 3. Breaking down the barriers.

For a free brochure, see your Archimedes dealer, or phone us on 0954 211472 or return the coupon.

PipeDream 3 is for all Archimedes computers with RISC OS and 1Mbyte of RAM.

PipeDream 3 costs £147.00 +VAT.

Major features include:

- many documents loaded at once
- intuitive RISC OS user interface
- displaying and printing of pictures within text
- built-in 93,003 word spelling checker
- file compatibility with PC & Z88 PipeDream and BBC View Professional
- background recalculation
- keystroke compatibility with Z88 & PC PipeDream
- Z88 filing system
- automatic loading of VIEW, ViewSheet, Lotus, First Word Plus, Tab and CSV files
- automatic saving of VIEW, Lotus, Acorn DTP format, Tab and CSV files
- multi-field sorting
- use of all available fonts
- 62 spreadsheet functions
- external references for 3-D modelling
- macro file recorder
- slot protection

For a free brochure, complete and return this coupon
PipeDream 3 ☐ View Professional ☐
Name _____
Address _____
_____
_____
_____ Post code _____

Colton Software, Broadway House,149-151 St. Neots Road, Hardwick, Cambridge CB3 7QJ, England.
Fax: 0954 211607 Tel: 0954 211472

All trademarks acknowledged. The chart in the screen shown above was produced by sending numbers from PipeDream 3 to Lingenuity's Presenter 2 and then loading the resulting graph back into PipeDream 3.

Colton Software, Broadway House, 149-151 St. Neots Road, Hardwick, Cambridge, CB3 7QJ, England.

Fax. 0954 211607 Tel. 0954 211472

TECHSOFT

DESIGNER intro

POSSIBLY THE ONLY DRAUGHTING SYSTEM YOU WILL EVER NEED

COST EFFECTIVE CAD

Created specifically for the Archimedes, **DESIGNER INTRO** is based on its big brother **DESIGNER (ARCHIMEDES).** It shares the same uniquely logical menu structure and many of the powerful draughting routines. Enough power in fact to cope with all of most peoples' draughting requirements. Many of **INTRO's** features are shown below. There is one feature however that we cannot show - its most important one - the simplicity of use that guarantees a short learning curve and speedy drawing generation.

FEATURES

Fully menu driven with simple prompts and instructions for all routines.

User definable grid with grid lock.

Hunt and lock onto nearest end of line, arc or centre of a arc/circle with a single button press.

True arcs, tangents and normals, essentials for most drawing applications but particularly important for engineering applications. Nine in-built arc types alone.

Ellipses, full or part.

Powerful delete facilities, e.g., last item, line, part line, arc, part arc, etc. (The software automatically finds intersections.)

Unique MODIFY command allows drawing to be redrawn a line at a time forwards or backwards. The drawing may be 'entered' at any point thus giving total flexibility to edit and alter drawings.

Automatic or manual dimensioning, user definable arrow heads/leader lines.

Text entry at any size, angle or slope. (Text output limited only by the plotter available.)

Hatching at any angle/spacing. Automatically finds enclosed boundary plus single or multiple islands.

Powerful ELEMENT (layer) structure.

No practical limit to the number of drawing elements that may be created.

Comprehensive transformation commands, MOVE, ROTATE, MIRROR IMAGE, ALTER SIZE.

No practical limit to the size of drawing created - limited only by disk space.

Libraries of drawings can easily be created. Library items can then be incorporated into the current drawing at any size, angle, position.

Zoom, scale and pan facilities (plot-outs may be taken at any time).

Output to wide range of line plotters from A5 to A0, e.g., Graphtec, Hewlett Packard, Hitachi, Plotmate, Roland, etc. Plus screen dumps for FX/MX/RX compatible printers.

COST EFFECTIVE CAD FOR YOUR ARCHIMEDES

In creating **INTRO** TechSoft have kept the features that made **DESIGNER (BBC)** so popular. There is however one feature that we have cut back on - the cost. **INTRO** is not a toy (although you will enjoy playing with it), it is a true working system at a realistic price.

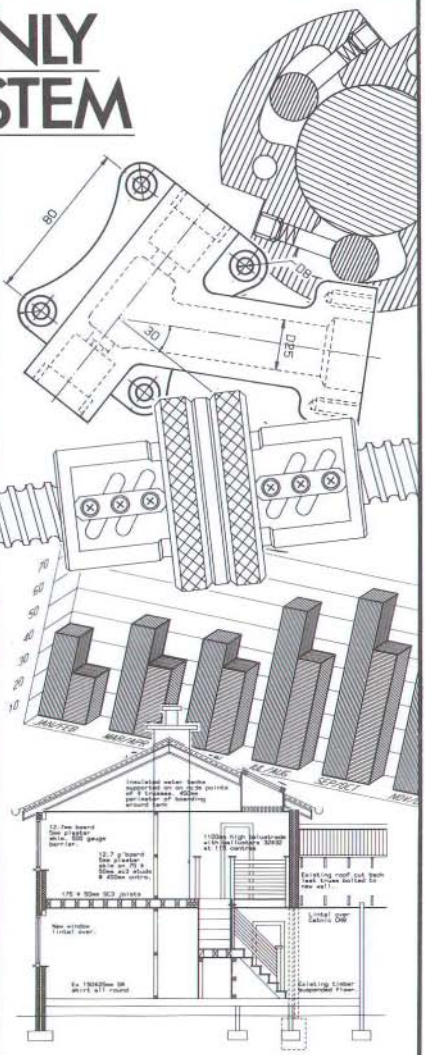
P.S. If your draughting requirements are more demanding than normal take a look at **DESIGNER (ARCHIMEDES)**, more than a match for any drawing.

PERIPHERALS

Please remember that TechSoft can supply a wide range of CAD related peripherals and accessories, e.g., plotters, plotter pens, etc.

ORDERING

Cheque with order please, payable to TechSoft UK Ltd.
Add VAT @ 15% of total. (Official educational orders welcome.)



ONLY **£75** *+ VAT.*

(OVERSEAS **£95***)*

TECHSOFT
NEW IDEAS IN SOFTWARE

TechSoft UK Ltd.
Old School Lane
Erryrys, MOLD
Clwyd CH7 4DA
Tel: 082 43 318

Help!!!!

• **Archimedes software** – Mr Davis would like to know whether anyone has written either a dedicated database which reads and stores disc file titles, or a volume control module to allow you to vary the sound with, say, the cursor keys. W R Davis at 28 Joseph Cresent, Alsager, Stoke-on-Trent, ST7 2RP.

• **Audio Cassette Inlay Program** – has anyone got a copy of this program that was published on the BBC Teletext Services? Contact Anthony Baker at 375 Wellfield St, Warrington, Cheshire WA5 1PX.

• **Bins for RISC-OS** – I have seen that a number of public domain bins are available now. Does anyone know of any that incorporate sound effects? There is such a program on the Mac and it is very satisfying to hear your file making a convincing thud as it hits the bin. Contact Andy Gravell on (0703) 631174.

• **Epson-GQ 3500 printer and !PrinterLJ** – Has anyone managed to get the !PrinterLJ configured for an Epson-GQ 3500 so that: (a) the paper limits on !Draw correspond to the paper edge (or printable area) and (b) landscape mode text-only printouts don't lose any characters.

• **Fast Fourier Transforms** – Has anyone written a FFT program in BASIC or preferably in machine code? Mr Owens of 5 Argoed Avenue, New Brighton, Mold, Clwyd CH7 6QL would be very interested to see such a program.

• **IBM screens** – Has anyone managed to convert IBM screens to Archimedes format? Contact Les Watson of 71 Baddow Hall Crescent, Great Baddow, Chelmsford, Essex CM2 7BX.

• **Maestro, MIDI and Armadillo** – Does anyone know how to make !Maestro play MIDI output for the A448m? Contact Mr R Browning, 10 Kingscote Road East, Hatherley, Cheltenham, Glos GL51 6JS.

• **Mathematical Shareware** – Brian Cowan is trying to compile a shareware disc with mathematical programs/applications on it. Any contributions would be gratefully received. Please send them to 66 Clarendon Gardens, Wembley, Middlesex HA9 7LE.

• **Music and Sound Column?** Colin Turnbull has volunteered to take on the editing of the new Music and Sound column. He writes... Judging by the results of Paul's survey, there is considerable interest in having such a column. With all the music hardware and software around for the Archimedes to enhance its already incredible music capabilities, I hope that many people will contribute to it as much as I intend to.

Information on any type of music or sound is welcome. Ideas for new programs, help with old ones, programs for musical ideas, programs that compose music, write variations on themes, or anything like that would be welcome. Music files could possibly be put on the monthly disc, as could any longer programs. Also any ideas for future columns would be very useful.

I will try to reply to all letters and return any discs sent. (If you do send one, please mark it clearly as yours!) You can write to me either care of Archive or write to me at 13 Woodhall Terrace, Juniper Green, Edinburgh EH14 5BR. Colin Turnbull.

• **RISC-OS Printer Drivers** – Has anyone managed to interface a printer that is not supported by the standard Acorn !PrinterXX applications with RISC-OS? Many readers have asked this question, particularly those with Epson MX-80 printers. Please write in and let us know. A

Help offered

• **Archimedes chemistry** – David Romsden has written a program aimed at A-level chemistry students. He would be happy to send a copy of the program to chemistry teachers for comments/criticism. Contact him at 7 Chevet Lane, Sandal, Wakefield, West Yorks.

• **Artisan primer** – After our request for d.i.y. training material that readers had produced, Steve Bruntlett sent in a copy of the "Primer for Artisan" which they produced at Leicester Polytechnic. He is currently trying to update and improve it using Impression, but he is willing to make it available either in photocopied form or on a set of five discs. If you are interested, drop him a line c/o the Archive office so that we can gauge the interest and we might make it available as an Archive product.

• **Digitised images** – Nneed anything digitised? Ray Maidstone has a broadcast quality camera and other video control gear and has offered a high quality digitisation service of photographs, paintings, etc to produce dithered colour Archimedes screens. Individuals should send an s.a.e. with the artwork and disk with a P.O. or cheque for £3 to: 421 Sprowston Road, Norwich NR3 4EH or fax (0603) 400477. This offer is not open to commercial users. However, this service could be arranged on a commercial basis by discussion.

• **Plotter driver for RISC-OS** – In answer to Peter King's query in last month's Help column, Mike Harrison has written a RISC-OS desktop utility to send !Draw files to a HPGL compatible plotter (which includes HP, Roland, Hitachi and several other plotters). The drawing can be re-scaled and you can adjust the pen speed, colours, etc. For obvious reasons, it does not cope with sprites or filled shapes. He plans to extend it sometime to do outline fonts (it currently uses the plotter's font for text) and to optimise the plotter output using pen sorting and vector sorting to reduce plotting time. It is available as 'Worra Plotter' from Oak Computers. (See the advert on page 40.). A

LC10 Colour Dump

Malcolm Banthorpe

Over the past two or three years the Star LC10 printer has established itself as one of the most popular budget-priced NLQ 9-pin dot matrix printers. It has Epson compatible control codes and can give excellent results when used in conjunction with the Acorn printer drivers – also available in colour. A colour version of the printer is also available, at generally £20 – £25 above the price of the monochrome version, and was spotted at the recent Personal Computer Show at Earls Court for as little as £194. It takes a four colour ribbon divided into black, magenta, cyan and yellow bands. The colour is selected by means of control codes which also allow overprinting of two colours – magenta and yellow to give red, magenta and cyan to give blue, cyan and yellow to give green – thereby giving direct access to printing in seven different colours.

Colour Control

For use in word processors which cannot easily be modified to accept these additional control codes, it is also possible to select the print colour by a command in double parenthesis such as ((C))2. The command is then automatically detected and and filtered out by the printer. A similar technique can be employed to select the printer fonts. The ribbon cartridge holder is cleverly designed so that it can also accept the narrower standard LC10 black ribbon cartridges without any adjustment. For little more than the price of an ordinary monochrome printer it is therefore possible to buy one which will allow printed text to be enhanced with colour. In common with other dot-matrix colour printers, the colours tend to be rather pale in draft mode printing, although in NLQ or double strike mode the results are very acceptable.

4096 colours?

It doesn't take too much ingenuity to write a screen dump routine which will print in the seven directly available colours, or to modify an existing monochrome dump. However, since the Archimedes is capable of a much wider colour range, it would be nice to be able to make screen dumps that reflect this. After all, much colour printing is done using just black, magenta, yellow and cyan inks. Mike Cook of Musbury Consultants has produced just such a colour dump which claims to be able to represent the full 4096 colours of which the Archimedes is capable. Musbury Consultants also produce the GreyDumps disc, capable of representing 4096 grey levels, which was favourably reviewed in Archive March 1989. Both programs use a similar dithering technique to achieve a wide range of tones.

In the case of the colour dump it works as follows. The screen image is sampled in a format corresponding to one sample per printer dot. Then the combination of magenta, yellow, cyan and black dots which most closely corresponds with the screen sample is printed. The difference between the printed dot and the screen sample is distributed to the surrounding pixels and will affect the subsequent choice of printer dot. Over a wide area, a mottled collection of dots builds up which represents the actual shade required.

That's the theory and in practice it seems to work quite well. I tried printing a screen containing patches of all the colours of the standard 256 colour mode palette and indeed the result was 256 different shades. I then went on to try printing a screen containing 2401 different dithered screen colours and again the result was 2401 different patches. Admittedly the differences between adjacent printed patches were very slight, but then they are when viewed on the screen anyway. As a further test I tried printing a dithered digitised picture of an apple containing little other than shades of red and green. Again the result was impressive, reflecting quite well the subtle shading of the original. Where the colour palette has been modified, as is likely in 16-colour modes, the dump takes the palette information into account.

The colour dump in use

The colour dump can be installed on the icon bar and then any stored screen can be printed by dragging it onto the icon, producing a dump of 7.6" x 6.05". Alternatively there are three modules which may be RMloaded to give three different sizes of dump from within a program or via the command line. As well as the size mentioned above, dumps of 9.45" x 7.6" and 19' x 15.2" are available. The latter is printed on standard width paper as two long strips which can then be combined into a poster. In order to print a screen from within a program which cannot easily be modified to include a dump command, a patch is supplied which allows a colour dump to be invoked by pressing all three mouse buttons simultaneously. The disc also contains a number of digitised pictures on which to try out the dumps.

Limitations

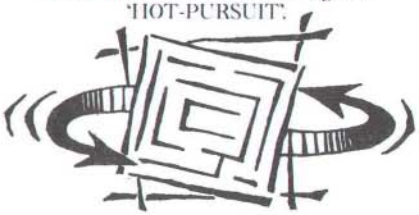
The main limitation of hard copy produced in this way is that, as mentioned above, the colours are somewhat pale. This a general problem associated with dot matrix ribbon printers and not a fault of the program. Results could possibly be improved if the program could be made to double strike. The dense blacks produced with the Acorn printer drivers, even from a moderately worn ribbon, show what is possible with an area of solid colour. It is however possible that double-striking would result in the printer dots spreading and reducing the subtlety of the colour shading produced by this colour dump. I say this from my experience that grey tones reproduced as dot patterns with the Acorn printer drivers generally appear too dark as rendered with a nine-pin dot matrix printer.

For hard copy which most accurately reflects a colour screen, unless you're prepared to invest in a very expensive colour printer, the best results are probably obtained by photographing the screen. Large photographic prints can be expensive though and dot matrix colour print may well provide a more convenient form of record. If you're considering buying a nine pin printer, the colour version of the Star LC10 may well be worthy of your consideration, especially now that an Archimedes colour dump is available.

The Star LC10 Colour Dumps from Musbury Consultants costs £30 (£25 through Archive) and seems to be priced rather high compared with their GreyDumps, possibly reflecting the fact that it has no competition at present. A

SOLOMON SOFTWARE

FREE DEMO DISK. Just send a blank disk and a S.A.E. for a free demonstration version of the strategy games 'THE CUBE' and 'THE HOUSE OF MIRRORS' and the arcade game 'HOT-PURSUIT'.



OR 'HOT-PURSUIT' a game of cat-and-mouse with a maze to get lost in and dogs snapping at your heels! — £14.95.
Also available 'THE CUBE' and 'HOUSE OF MIRRORS' — £14.95 each.

CHEQUES PAYABLE TO: P. CROALL
Solomon Software,
PO Box 258
Wolverhampton WV2 3AS
Tel: (0902) 28522

Designed, & typeset

Impression is more than a word processor. It can handle all aspects of the final printed result - the text, line graphics, photographs, company logos etc. Yet it can still be used to bash out a single page of text as well as any 'simple' word processor. It is a document processor.

RISCOS

Impression is one of the first products to take full advantage of the new multi-tasking WIMP based operating system for the Archimedes, so it is simple and intuitive to use - long gone are the days when users had to remember commands, or codes for each operation. Only five main menu options control everything within Impression.

The program is written in ARM assembler so it is very fast and very responsive, and uses the minimum possible RAM space.

Frames

Impression is a frame based page layout system. All objects on the page are held within frames which may be positioned freely anywhere on the page. Frames can contain text or graphics, they may overlap, and may be transparent or have any coloured background. They can have a variety of borders displayed around them and may be arranged in columns to create multi-columned text.

Text frames may be linked to other text frames (even on subsequent pages) so text will automatically flow from frame to frame and page to page. Since Impression has been designed primarily as a word processor, it is important that users can enter text unhindered. Therefore frames and pages are created automatically as text flows out of a frame, so that while text is being entered you do not have to worry about creating new frames or pages.

Graphics frames may contain any sprite (for example images from Scan-Light) or any Draw file. All graphic frames may have the picture scaled within the frame to any degree. In addition the aspect ratio of pictures can be controlled and even locked to any required value.

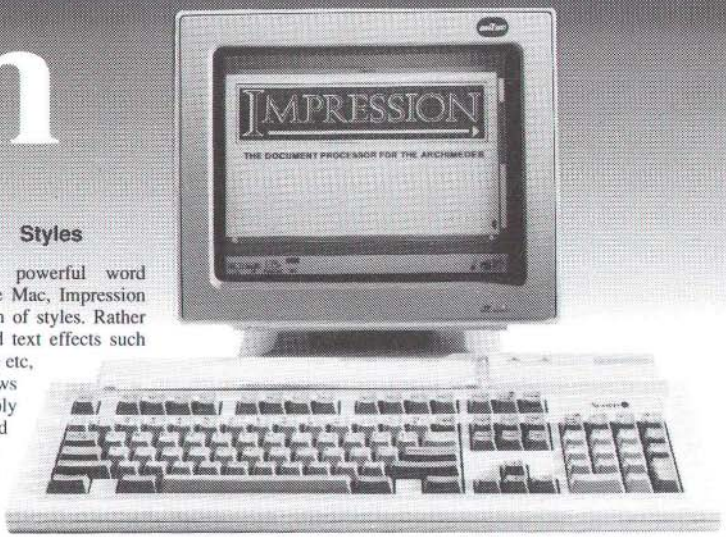
Windows

Impression can handle up to 16 documents in memory at any one time, each being viewed in one or more windows. Each individual view may be scaled as required so that, for example, one view may be at 100% while another window shows the same document scaled to 20% so showing a live 'mini' view or multiple page 'thumb-nail' views. This mechanism also allows two different parts of a document to be edited without the need to scroll between them. Impression can display its pages within the window as side-by-side left/right pages, and as vertically arranged pages in a more word processor-like fashion. There is no need to specifically turn over the page, thereby overcoming a limitation of traditional DTP systems.

Spelling checker

Included with Impression is a 60,000 word spelling checker providing some of the most advanced spelling facilities. Check-as-you-type, user dictionaries, ignore dictionary, crossword and anagram solving and an intelligent 'guess' feature are included. Other related dictionaries control automatic abbreviation expansion as you type, and a hyphenation exception dictionary for precise hyphenation control over and above the normal automatic hyphenation.

arranged on



Styles

Like the most powerful word processors on the Mac, Impression supports a system of styles. Rather than having fixed text effects such as bold, underline etc, Impression allows the user to apply any user named style to any part of the text. This style may be defined and re-defined at any time to represent any combination of stylistic effects. So for example one style, perhaps called 'heading', may specify text to be in a Times font, one inch high, in italics and centered. This style may then be applied to any region of text with one key-press.

Printing

Included are the latest RISCOS printer drivers for Epson compatible 9 and 24 pin printers, and LaserJet compatible laser, ink-jet, and PostScript printers. These printer drivers ensure the output is to the maximum resolution the printer can manage. Impression also supports 'text mode' draft printing so text may be output as fast as possible using the printer's character set. The user therefore has a choice between fast, text only printing or high quality text (any font, any size) and graphics printing.

Impression comes with a 'no quibble' money back guarantee when purchased direct from Computer Concepts.

This advert was designed, entered, laid out and edited on Impression. All logos were created in Draw and imported into Impression frames. The pages were then 'printed' via the PostScript printer drivers to disc. This disc file was then sent directly to a Linotron photo-typesetter, which output the final camera ready artwork. The studio photographs were then pasted over scanned versions.

Other features:

- Master pages for consistent document design.
- All measurements may be specified in inches, mm, cm, points, picas, all to an accuracy of 1/72000ths inch.
- Ideal for a 1Mbyte machine - over 300K free memory!
- Fast automatic disc spooling of documents larger than memory, allowing virtually unlimited document size.
- Print multiple pages per sheet, any scale and rotated.
- Includes Acorn's new outline font system and fonts.
- Fast graphic scale and PostScript graphics printing.
- Automatic index generation.
- The package includes a 200 page manual (produced entirely with Impression), with tutorial, introduction and reference sections. Four discs include Impression, the printer drivers, the outline font manager and fonts, example document, Line-art examples, utility programs etc. An independently produced guide book to typography and page design is also included.

£149.00 +VAT (£171.35 inc)

A more detailed brochure is available from:

Computer Concepts Ltd

Gaddesden Place, Hemel Hempstead, Herts HP2 6EX. (0442) 63933

Keyword – A Desktop Thesaurus

Pete Holdroyd

Keyword – Published by Swift Software. Price £19.95 (Archive £18)

In case anybody is unclear as to the function and purpose of a thesaurus, it is a list of synonyms, classified according to context and usage. The most famous thesaurus is Roget's, currently published by the Longman Group UK Ltd.

People use a thesaurus (a) to avoid repetition of words in the same or successive sentences, (b) to improve the precision with which they write (selecting the word that is just right, rather than one which is only approximate in meaning), and (c) to find better ways of replacing hackneyed expressions. (You'll note it hasn't stopped me from repeating the word 'to' three times!)

The application, KeyWord, is a totally-rewritten-for-RISC-OS version of a program originally designed for IBM PC's and compatibles. It contains, it is claimed, over 10,000 synonyms and antonyms, and nearly 1,000 main subject headings. The instructions come on one side of a card, folded to give two A5-size pages. The disc is not copy-protected and Swift should get points for their bravery in this respect. (See Paul's comments in earlier editions of Archive about this, with which I entirely agree – grovel, grovel!). They ask, quite reasonably, that users do not abuse this policy.

Swift recommend that KeyWord be run from a hard disc, if you have one, or from RAM disc for even faster access 'if you have 264k to spare'. Not having a hard disc, I took this course – creating a 264k RAM disc and copying KeyWord into it. Clicking 'Select' twice on the directory entry caused the application to be installed and a small 'open-book' icon appeared on the icon bar at the right-hand side.

Clicking on the icon opens a two-part window: on the left is a space for a source word (or part of a word), whilst on the right is space for the response. As with other windows, this response window is controllable with the scroll bar and size icon (in the top-right corner). At this stage, I discovered that, even in screen mode 12 (and I usually use 15) in my 1 Mbyte A3000, I couldn't have the RAM disc, Printer-driver, the KeyWord application and !Edit co-resident. The latter wouldn't load from the Apps1 disc. The Task Manager showed I was short of about 8k of RAM.

I continued with 'Plan B', cleared the RAM disc, and let KeyWord sit in my second disc drive, so I could use the !Edit application.

Whilst experimenting with KeyWord, I discovered that F12 seemed no longer to do anything: no '*' appeared at the bottom of the screen. This turned out to be the case whenever the KeyWord window was open (i.e. the application running), but normal service was resumed after the window was closed.

I tried out KeyWord using the example Swift give in their instructions. It suggests typing LE, being the beginning of the word LEARN, into the Source box. The response window filled with some 97 words from 'lead' to 'lexicon'. Not only synonyms, but a choice of contexts, or categories as this program calls them, are available.

So, for example, starting with 'learn', one of the synonyms offered is 'study'. Pointing at this and clicking 'Select' transfers that word to the 'Source Word' box and causes a list of categories or contexts to appear in the response window. In this case, these were: attention, enquiry, learning (which refers back to where we started), school, painting, dissertation, thought and preparation.

I picked 'preparation' from this list to be a new source word, which resulted in about 40 words of similar or related meaning in the response window. So far, so good.

The application has been written, we are told, by a professional journalist for his own use. As someone who pretends to write, and will one day have a novel published(!), I decided to see whether KeyWord would be of practical help to me. One situation may occur when writing dialogue: lots of 'he saids' and 'she saids'. These can be overdone and it isn't necessary in practice to use these phrases repeat-

edly, as long as your reader doesn't become confused about who is speaking.

Anyway, for the sake of trying, I typed 'said' into the source word box, curious to see what alternatives would be offered. Answer came there none. I tried 'cried' – another hackneyed term, sometimes used in dialogue passages. Again, no response.

In fact, there are responses to 'say' and 'cry' – i.e. the infinitive form, but it won't pick up the various tenses of verbs. Also, be prepared to add your own endings, such as '-ly', to adverbs. 'Quick' gives a response, whereas 'quickly' doesn't, and neither does 'quickening', though 'quicken' appears.

On the other hand, there are enough obscure meanings, as well as familiar ones, to impress: 'Seethe', for instance, produced categories of 'violence', 'heat' and 'resentment': not everyone will be aware that 'seethe' is an archaic verb meaning to cook by boiling, because the other categories are these days unfortunately more familiar. But I have no doubt this old meaning accounts for the 'heat' option.

Conclusion

KeyWord can be used endlessly/forever/everlastingly/perpetually, etc. It will be of particular use to anyone wishing to broaden their written vocabulary or, indeed, to budding writers and others concerned for the style of their prose.

In favour of the software, it can be said that it is easy to install, and learning to use it takes about five minutes. Within that time, you could be operating it instinctively. Another point, as mentioned earlier, is that the disc is not copy-protected. The dictionary seems quite extensive enough for normal use – though it doesn't compare with Roget's Thesaurus, which has a quarter of a million words, or even a fairly mediocre dictionary with over 40,000 words.

Against this should be set a few considerations: on a machine with 1 Mbyte of RAM, there is very little memory left after transferring Keyword to a RAM disc and installing the application – not enough to run !Edit, and probably insufficient for most Word and Text processors.

Installing the application only, leaving the dictionary on disc, means that, on a single-drive machine, you will be forever changing discs between text saves and dictionary accesses – though the 260k or so of the program could be copied to your text-file disc and still leave quite a lot of room for text files, so this may not be too much of a problem. Users with hard discs, two floppies or 2 Mbytes of RAM shouldn't have any difficulty.

The recognition of the infinitive form only of verbs could be a nuisance, but the main problem seems to be that the user cannot add to the dictionary. So if you have a particular use in mind, for example writing up scientific projects, where the language is specialised, you cannot (apparently) tailor KeyWord to your use.

The review copy of the program, labelled as V1.00, had an intermittent 'bug' which decapitated the letters of some of the words in the response window when using the scroll bar to scan the list. There was also the odd misspelling in the dictionary – 'Tommorrow', for example. Hopefully, this will be ironed out before the program becomes widely available.

Some of the contexts seemed unusual: I looked up 'amend' – it was spelt properly – and found the categories to be 'restoration', 'improvement', 'compensation', 'restoration' (again!) and 'atonement'. My copy of Roget gives, simply, 'rectify' and 'repair'. Personally, I don't see the connection between 'amend' and 'atonement'. The Concise Oxford Dictionary defines 'amend' as to correct an error in a document; and to make minor improvements, or make better. 'Atonement' is defined as 'expiation or reparation for wrong or injury; reconciliation of God and Man.' 'Amends', in the sense of 'making amends' – which might well relate to 'atonement' – is a noun, not a verb, and is quite a different word altogether. So I am left wondering how some of the categories were arrived at.

One thing I looked for in vain was the provision of antonyms – promised as part of the package. I expected simple responses from placing words in the source box, such as 'come' for 'go', 'up' for 'down', or 'stupidity' (or something) for 'knowledge'. But none of the above!

Obviously, I haven't been through any significant proportion of words in the KeyWord dictionary and I may have found isolated instances.

At £18.00 through Archive, I think the package is very good value for money. Swift have told me that they are already supplying version 1.01, which has corrected 'one or two' spelling mistakes and has stopped beheading characters when the response window is scrolled. The temporary loss of the F12 '*' command function will, they say, be remedied in the next version 'due out in the next week or two'.

I am quite impressed with the application on first acquaintance, and in my view it would be a useful accessory for anyone who uses their computer for text processing and is concerned to improve their vocabulary and style. I do not think, however, that for a professional writer, KeyWord will totally replace a written thesaurus and dictionary. A

An OsSWI Calls Module

Maurice Hendrix

When you are working in the desktop or entering commands directly at the *-prompt and you need to issue a SWI, what do you do? You go down into BASIC, enter the appropriate SYS command and return to wherever you came from. Haven't you ever wondered why Acorn never bothered to include some kind of a *SYS command? As I very often need such a facility, I have wondered about this many times. So, I decided to supply the *-command myself.

The OsSWICalls module supplies just one command with which you can call a SWI. It returns the ARM registers (R0-R7) and flag settings in a number of system variables.

How does it work?

When the module is installed it claims a workspace of 200 bytes and prints the installation message. When you issue the *Sys command, the module converts the SWI name – which, by the way, is case-sensitive – into an ARM instruction. The optional 8 parameters that can be passed on to the SWI are stored in registers R0-R7. If a parameter is a string then that string is saved in the work area and a pointer to this string is set up. Next, the module calls the SWI. When the SWI returns to the module, the contents of the registers are stored in the system variables Reg$0...Reg$7. Also, the status of the flags is passed to a system variable (Reg$Flags).

Passing numbers

You can pass numbers to a SWI in any base between 2 and 255. Decimal (base 10) numbers are assumed by default. Hexadecimal (base 16) numbers can be preceded by the '&'. A number in another base should be preceded by '<base number>_'. For instance decimal 45 could be passed as:

- 45 as a decimal
- &2D as a hexadecimal
- 16_2D as a hexadecimal (=base 16)
- 2_101101 as a binary number (=base 2)

Passing strings

If the string consists of only a single word, you can just type the word. The OS will recognize it as 'Not a number' because it can't translate it as a decimal value. If you wish to pass entire sentences (or a number in string format) you'll need to put the string within quotation marks. Otherwise the spaces will be interpreted as parameter-separators.

Returning numbers

The SWI usually returns some values. When the SWI returns to the module these values are stored in registers R0-R7. The module then passes these values on to you in the system variables Reg$0 to Reg$7. Simply type *Show Reg* to get a list of the values returned by the SWI.

Returning strings

Occasionally a SWI will want to return some text to you. Instead of passing the string (because it can't) it will pass a pointer to that string. This pointer is passed as if it were a number. So, just supply this pointer to another SWI (e.g. OS_PrettyPrint or OS_Write0) in order to read it.

Now for some examples:

Switch on your computer and type the following:

```
*RMLoad OsSys
```

```
OsSWICalls v1.70 by M. Hendrix =>
    Installed
*Sys OS_Byte
RISC OS 2.00 (05 Oct 1988)
```

As you can see, after having entered the *Sys command, the version text of the OS is displayed. This is because any missing parameter is defaulted by the OsSWICalls module to zero!

If you type:

```
*Show Reg*
```

You'll find that no system variables have been created. That's because OS_Byte 0 never returns to the module because it generates an error. The version text is in reality an error message. Next try:

```
*Sys OS_Byte 0 1
*Show Reg*
Reg$0 (Number) : 0
Reg$1 (Number) : 6
Reg$2 (Number) : 0
Reg$3 (Number) : 0
Reg$4 (Number) : 0
Reg$5 (Number) : 0
Reg$6 (Number) : 0
Reg$7 (Number) : 0
Reg$Flags : nZcvif
```

According to the RISC-OS PRM, R1 should hold the OS version number because we passed a non-zero value in R1. (Reg$1, the system variable equivalent of R1, is presently holding 6. I would expect it to hold 2 or 200. So, can anybody shed light on this apparent inconsistency?)

Now enter:

```
*Sys OS_WriteC 67
C*
*Show Reg*
Reg$0 (Number) : 67
Reg$1 (Number) : 0
Reg$2 (Number) : 0
Reg$3 (Number) : 0
Reg$4 (Number) : 0
Reg$5 (Number) : 0
Reg$6 (Number) : 0
Reg$7 (Number) : 0
Reg$Flags : nZCvif
*
```

The character 'C' is printed on the screen. You'll also notice that Reg$0 contains the value 67, the ASCII value of the character 'C'.

Enter:

```
*Sys OS_PrettyPrint "Hello world!"
Hello world!*
*Show Reg*
Reg$0 (Number) : 25262932
Reg$1 (Number) : 0
Reg$2 (Number) : 0
Reg$3 (Number) : 0
Reg$4 (Number) : 0
Reg$5 (Number) : 0
Reg$6 (Number) : 0
Reg$7 (Number) : 0
Reg$Flags : nZCvif
```

The value in Reg$0 is not the ASCII value of the string "Hello world" but a pointer to a place in memory where this string is stored. To see if that's correct let's pass the pointer on to another SWI and see what happens:

```
*Sys OS_Write0 25262932
```

(Remember that this number may differ for you!)

```
Hello world!*
```

As you can see, the string is printed again.

The Program

The program is rather too long (5 pages. Ed.) to print in the magazine so if you don't want to pay £3 for the monthly program disc, you can send an A4-sized S.A.E. for a printed copy. The listing we will send supplies the source code and generates a file called 'OsSys'. The file 'OsSys' is the actual module, so you needn't run this program every time.

The program could be made shorter and also other facilities could have been included. Maybe next time. In the meantime, if you have any bugs, questions, suggestions or improvements please let me know. You can contact me via Archive. A

COMPLETE HEALTHCARE & BUSINESS MANAGEMENT
ON THE SCREEN
Calderglen – Lancashire's leading Acorn dealer
At last there are some very user-friendly computer systems designed for healthcare and business management. Whether you're an experienced computer user or a novice, our systems can save you two important commodities – TIME AND MONEY.
* Healthcare Administration
* Business Accounts * Payroll * Stock Control * Garage Recall And Much, Much MORE!
Both hardware and software packages are available from CALDERGLEN – market leaders in Care Administration Programs. (Educational enquiries also welcome)
A full hardware catalogue includes: BBC A3000 at £649 Archimedes 410/1 at £1,199 and 10% off your printer when purchasing any Archimedes.
For a full catalogue or FREE demonstration of any of our programs please contact:
CALDERGLEN COMPUTERS LTD
279 Keighley Road, Colne, Lancs.
Telephone: 0282 866481
We operate a nationwide service through our dealer network and a full after sales service.
Access & Visa Welcomed
CALDERGLEN
COMPUTERS
CARING IS OUR BUSINESS

Pipeline

Gerald Fitton

Once again let me start by thanking all of you who have written in to PipeLine. A topic which has come up in many letters, but particularly as a question from Daniel Dorling and as a solution from Geoff Gibson, (with some comments from Colton), is the use of PipeDream's column structure to hold the fields of a database. This will be the main topic for this month but first a few "quickies".

NEC P2200 printer driver

Cedric Peachey reports that the NEC P2200 gives a few problems when it is driven from the FX80 printer driver supplied by Colton. He has written a printer driver for the NEC P2200 and included in the set of translation characters, many French characters. This printer driver is on the monthly disc within the PipeLine Directory. Please note that it is **not** a RISC-OS graphics printer driver. Cedric also stresses the value of using "Tidy Up" regularly (use the mouse menu button on the PipeDream icon on the icon bar), particularly if you are using a 1 Mbyte machine.

French characters

Try *country France together with a character translation table such as that in the NEC P2200 printer driver on the monthly disc. If some clever person comes up with a suitable printer driver, I'll see if I can get it on the monthly disc. If you can't get the character on your printer then try redefining the characters on the printer; an example is the "Greek Set" (Archive 2.11 p 5) and which you'll find on the disc for that month.

1 Mbyte machines

Colton suggest that if you have graphics to print from sprites then mode 1 will print them with the correct aspect ratio whereas mode 0 will not. Printing with Acorn's RISC-OS graphics drivers is fastest when the module area has maximum free space (use the Task Manager).

Word to word

If you hold down the <shift> key whilst using the cursor control keys (the arrowed keys) then the caret jumps from word to word rather than from letter to letter. This is generally faster if you want to cover a lot of ground. By the way, holding down the <ctrl> and tapping a cursor control key will move you to the end of the line.

Days between dates

Use <f2> to edit expression in your first cell. Enter the date in date format (e.g. 23.10.89) and repeat for the second date cell. In a third cell again use <f2> followed by a formula subtracting one date from the other. Suppose the dates are in C6 and C7 and the difference has to be in cell C8. With the caret in C8 tap <f2> and type in C6-C7 followed by <return>. The difference in days between the two dates appears as if by magic in C8. I have just done this with today's date and one from a long time ago to discover that I have been alive nearly 21,000 days so you can see I'm no whizz kid! – however I first programmed a computer about 14,000 days ago so I've had lots of practice. On the monthly disc you will find an interesting example of using formula on dates called "IncDates" by Geoff Gibson.

Caret visibility

The simple answer to "Can you change the colour?" is "No!" but the more complex answer is "Play with the palette and PipeDream's colours in the colour dialogue box until you get something that works."

Justification

We set Colton the task of right justifying to two widths from the same left margin position. They say it took them all of ten minutes to solve this problem but they won't tell me the answer (yet!). They have offered a bottle of champagne to the first reader of Archive who sends in (to Colton please – not to me or to Archive) a solution which they do not regard as cheating. They are the final arbiters of what is cheating. My guess is that not cheating means that you have to be able to do the operation on all usual blocks of text and that, if you want to, you can undo what you have done, add a few words and reformat. I will publish the answer (or answers) when I get the result of the competition from Colton. I've got a few ideas myself but I'll disqualify myself from the competition so it doesn't matter that I have a head start on you!

PipeDream as a Database

Perhaps you want to create a bibliography, catalogue your CD's or just store some names and addresses ready for printing address labels. For any of these applications, the database facility of PipeDream is very good.

A database consists of "records". Records consist of "fields" and fields contain characters. Make each row a separate record and each column a different field. If you have PipeDream 3 then you can have multi-row records. These are more tricky to handle, so stick to single row records until you know what you are doing. Let's take, as an example, names and addresses that are going to be used for printing address labels. Think carefully about the fields before you start. Generally it is better to have too many fields rather than too few. Use one field for - Title (such as "Mr"), one for Surname and another field for Initials (or "first names" – the modern equivalent of Christian names), reserve one field for the House Number (or name), another for the Street, yet another for the District, etc.

You use the <tab> to move the cursor from column to column (i.e. from field to field). From the Options menu, turn off the "Wrap", otherwise, if the data in the field is too long for the slot width, you will find yourself typing on the next line with a difficult to fix mess! I shall not try to explain the mess since it will be better for you to try leaving the wrap on and see what happens so that you will recognise your error when it happens by mistake.

By the way, join-lines sometimes helps you to get back to where you were. When you are filling in the data, do not be tempted to fill in the fields from left to right willy-nilly, if you don't know the District then leave that field blank rather than fill the field up with the Town. Reserve one field for the Post Code and another for the Telephone Number. You may also want a special field for the "Type" of record such as friend or customer, etc.

Keep saving the file in PipeDream format because this way you will retain the column structure and your options (including wrap off). Finally, save the file under a separate name (e.g. "DataTab") in Tab format ready for printing the labels. If you want to amend the file later, amend the PipeDream format version. Having two copies is not a waste of disc space – you should have two separate discs anyway, one as a backup of the other.

To obtain a printout of an address label you must create a new file (e.g. "Form" which can be in PipeDream format) containing reference to the fields. This is explained in the PipeDream 3 handbook on pages 201 and 202 and on pages 151 and 152 of the earlier handbook. The data in the "A" column is in field "0", that in "B" is in field "1", etc. So if you have fields for (A) Title, (B) Surname, (C) First Names, (D) House Number, (E) Street Name, etc. then your label form file (e.g. "Form") would start:

@0@ @2@ @1@
@3@ @4@
etc.

You print out your labels from this ("Form") file but using as your Tab Parameter File the Tab file of data (in this example "DataTab"). You will get a printout which is typically:

Mr Gerald Lewis Fitton
29 Okus Grove
etc.

Printing advice from Geoff Gibson and from Colton: Set the page length to the length of the label, set all margins to 0 (I can see the logic of doing this for top and bottom margins but Geoff Gibson suggests you use the left margin setting to print in the "right place" on the leftmost label), put a page eject in the bottom of the label definition and take the form feed out of the PipeDream printer driver (I am struggling to understand the why of that bit – but then I'm trying to work out how to print about 10 labels on a sheet with a laser printer!), print with "wait between pages" ON until you've got it working properly. If any of you have other brilliant ideas about settings then let me know.

Examples on the monthly disc

The PipeDream format file "DataPD1" has a tab file equivalent called "DataTab1". Load the file "Form1" and from it print out the data from "Data Tab1" by using the Tab Parameter File "DataTab1". "DataPD3" is a similar but extended example from Geoff Gibson. The database file "DataPD2" etc. needs a condensed printer driver (such as the "Cond17" on the monthly disc) to print out a bibliography such as Daniel Dorling wants (I hope!) –

Daniel, let me know (for other PipeLine readers) how you get on with this "Mail Merge" strategy. Note that, in PipeDream format, you do **not** have to set the column width to the maximum width of the field – but make sure that Wrap is OFF.

Finally, please keep those letters coming in (via Abacus Training). Thanks to all of you who sent letters in – problems as well as solutions are most welcome. If you have anything long and complicated (particularly problems) then I would prefer it on a disc – all discs will be returned. If I can't find an instant solution to your problem then we'll see what the Archive readership and Colton can provide. A

BASIC V Forum

Clifford Hoggarth

In my last article (Archive 3.1 p36) I described the behaviour of linefeeds and semicolons in the BASIC PRINT statement, and how it changed when the desktop was used. Well, now for the explanation. It is actually a feature of the operating system. (No, not one of the "bug or feature" type.)

The feature is termed "scroll protection" and involves "pending line feeds". The gist of it is that there are two different sets of events which can occur when a character is printed in the last column of the screen. Usually this would generate a line feed and a carriage return, placing the cursor at the start of the next line. However it is possible to postpone the linefeed until just before the next character is printed.

This is not a new feature of RISC-OS – it was available under Arthur. The default is configurable using *Configure SCROLL/NOSCROLL and can be changed dynamically using:

```
VDU 23,16,a,b
```

This command is also used to set various cursor movement options, etc and alters a byte of flags by performing the operation:

```
((current byte) AND b) EOR a
```

The scroll option is controlled by bit 0 of the byte, so the scroll control can be altered alone by issuing:

```
VDU 23,16,&FE,b
```

where b=1 to enable and b=0 to disable "scroll protection" as it is described.

The problem described last time occurs because the desktop sets the scroll protection but does not reset to its previous state when quitting. Hence with scroll protection off, the statement PRINT TAB(x,VPOS); generated a line feed when it printed in the last column, so for the following statement, VPOS had the value for the line below. But with scroll protection on, the linefeed was only pending and VPOS returned the **same value** and so the line was continually overprinted.

...and another bug?

Again it's a bug concerning the number zero (strange how BASIC seems to have such trouble with what would appear to be the simplest number for a computer to handle – it can only have one possible meaning). Try typing the following:

```
PRINT TAN(0)
```

and then try:

```
a=TAN(0):PRINT a
```

or

```
a=0:b=TAN(a):PRINT b
```

Oooops!! The second example shows the actual result produced by TAN(0) (which is -1.46936794E-39, in case you can't be bothered to try it yourself). The first statement gives the correct result (which I'll remind you is 0) presumably because of rounding.

Note that performing a calculation using this result e.g. TAN(x)*100, where x=0, usually produces the correct result, presumably -1.46936794E-39 is effectively zero for BASIC's floating point routines. If so, then the only problem arises when the result of TAN(0) is to be displayed (which is how this bug was discovered in the first place).

Hopefully by the next article I'll have more time available to discuss more fully some aspect of BASIC. If you have anything you would particularly like covered, drop a line to me care of Archive magazine. A

20" MULTISYNC

The Oak PCM 20 multisync monitor is designed specifically for use with the Archimedes range of computers. It has external adjustments for width, height, horizontal and vertical position for each of 3 frequency bands and automatically selects the correct band for all Archimedes screen modes except 23 (hi-res mono). A TTL input is also provided for use with Model 'B's, CGA, EGA etc.

PCM20 **£1495.00** *P&P £15.00*

WORRA PLOTTER

Worra Plotter is a desktop utility which allows draw files to be plotted on HPGL compatible plotters. Pen speed, colours and paper size may be selected and output can be scaled and offset before being sent to the plotter via either of the ports, the network or to file.

Worra Plotter **£29.95** *P&P £4.50*

WORRA BATTLE

A challenging arcade classic demonstrating the amazing speed of the Archimedes. Pilot your high speed battle tank and attempt to destroy the enemy invasion fleet. Protect yourself from enemy fire by hiding behind the ancient monoliths or by using your limited flight capability. Watch out for the deadly heat seeking neutron fire. Stunning 3D graphics accompanied by realistic digital sound make this a game not to be missed.

Worra Battle **£14.95** *P&P £4.50*

SCSI CARDS AND WINCHESTERS

Oak's high speed 16 bit SCSI podule offers a new level of performance for the entire Archimedes range with data transfer rates of up to 1.3Mb per second, up to 2 gigabytes of winchester storage per machine and support for seven SCSI devices including 4 winchesters. The card provides a new filing system 'SCSIFS', an icon and filer for the Risc OS desktop. It can work in tandem with ADFS winchesters and is compatible with the PC emulator. Low level support is provided for other SCSI devices (e.g. tape streamers, CD Roms etc.) Internal winchester kits are supplied as plug in and go units with all necessary cabling and mounting hardware, and external drives are housed in sturdy metal cases, colour matched to the Archimedes, and have their own power supply and fan. External drives are also suitable for use with the A3000 - please specify when ordering. Drives up to 70Mb include a £10 voucher for Mitre's Disc Tree backup software, whilst drives over 70Mb include a free copy of Disc Tree.

Internal Drives *(inc. SCSI card)*		**External Drives** *(inc. SCSI card)*	
20Mb	**£375.00**	*20Mb*	**£535.00**
45Mb	**£495.00**	*45Mb*	**£655.00**
70Mb	**£895.00**	*70Mb*	**£1055.00**
SCSI CARD		*100Mb*	**£1450.00**
SCSI Podule only	**£199.00**	*200Mb*	**£1850.00**
		330Mb	**£2400.00**

Extra external winchesters subtract £100 from price including card. P&P £15.00 on all drives (£8 for SCSI card).

ST506 WINCHESTER DRIVES

A wide range of both internal and external ST506 winchesters is available from Oak, making use of the Acorn hard disc controller. Internal drives are supplied with all necessary leads and mounting hardware, and external drives are housed in metal cases with PSU and fan and come complete with cables, socketry and metalwork for the back of the Archimedes. A 64Mb drive is available especially for use with the R140 and is supplied with software for partitioning between Risc iX and ADFS.

Internal Drives		**External Drives**	
20Mb (65mS)	**£299.00**	*20Mb (65mS)*	**£349.00**
40Mb (65mS)	**£379.00**	*40Mb (65mS)*	**£478.00**
40Mb (28mS)	**£555.00**	*40Mb (28mS)*	**£665.00**
47Mb (28mS)	**£650.00**	*64Mb (28mS)*	**£765.00**
P&P £15.00 on all ST506 drives.		*64Mb (for R140)*	**£795.00**

PARAMETRIC DESIGN TOOL

Oak PDT is probably the world's most advanced Parametric Computer Aided Design package. PDT works in a different way from traditional co-ordinate based CAD systems by storing mathematical and geometric relationships rather than simple co-ordinate information and therefore has several important advantages. Any edit made to a design automatically updates the entire drawing to cater for all the 'knock-on' effects of the change and hence allows design options to be quickly investigated and evaluated. Any drawing created within PDT is, in fact, a working model and so, for example, if an internal combustion engine is drawn and the crankshaft is turned, all the other components related to the crankshaft will automatically be moved to the correct position. Animation sequences may be automatically generated to show designs working. The mathematical behaviour of the design may be built into the drawing so that the model may be thoroughly tested even before any hard copy is produced. PDT supports 64 layers, a comprehensive range of geometric constructions, zooming and panning, automatic associative dimensioning and takes full advantage of the floating point co-processor if fitted. Hard copy output is to HPGL compatible plotters and Epson compatible dot matrix printers. PDT can output sprites to painting packages, and DXF files to other CAD software and !Draw - and then on to DTP or Risc OS printer drivers.

All prices exclude VAT *PDT* **£359.00** *P&P £6.00*

Oak Computers, Cross Park House, Low Green, Rawdon, Leeds LS19 6HA Tel:0532 502615 Fax:0532 506868

Introduction to C – Part 3

Chris Dollin

Reading the typeset version of the last article, I notice a mistake and a possible ambiguity. The mistake is mine: at the top of page 54, in the summary of arithmetic and bitwise operators, "|" should have been labelled as bitwise OR, not AND. The ambiguity lies in the typesetting: it is not clear that the decrement operator "--" is actually two consecutive "-" signs.

In this month's article, we shall discuss pointers a little more and introduce C *structures*, still using our example of a pack of cards.

The pointing finger

Towards the end of the last article I made some throw-away remarks about pointers. If you recall, we asserted that

```
char *ranks = "?A23456789TJQK";
```

declared *ranks* as a *pointer to char*. A C string is an array of characters; in most places, an array is treated as a *pointer* to its first element. A C pointer is a value that can be used to refer to an object, usually a variable (or a component of a variable). (Unlike a Pascal pointer, a C pointer can refer to **any** object, not just one allocated by *new*.)

As a simple example of the use of pointers, consider

```
void clear_int( int *pi )
    {
    *pi = 0;
    }
```

The function header says that pi is a pointer to *int*. The way to read it is, in fact, that **pi* is an *int* (variable) just as *int i* says that *i* is an int variable, and *int a[42]* says that *a[i]* is an an *int* variable. This allows us to write **pi* as the left-hand side of an assignment; the body of the function just sets the pointed-to integer variable to 0. The prefix operator *"*"* is known as the *indirection* or *dereferencing* operator.

Note that the *"*"* belongs to the variable name, not to the type (here, *int*) used to declare it, so the declaration

```
int *pi, i, **ppi;
```

declares pi to be a pointer-to-int, but declares *i* to be a plain *int*, and *ppi* to be a pointer to a pointer to *int*.

When *clear_int* is called, a pointer value must be supplied: we can either pass a existing pointer value or create a new one with the *address-of* operator, *"&"*:

```
clear_int( pi );
clear_int( &i );
```

Note that if pi has not been given a suitable pointer value, awkward things (like the computer turning into a butterfly!) will happen when the dereference happens inside *clear_int*. C does as much checking on pointer operations as it does on array subscripting: none!

Pointer arithmetic

Following the declaration of *ranks* as a pointer we then quietly used it as an array. How and why does this work? It works because C interprets the expression *a[i]* as meaning **(a+i)*. But what does this addition mean?

If *a* is an array, it first of all "decays" into a pointer to its first element. The integer *i* is then added to it to construct a new pointer which points *i* elements further on in the array. Dereferencing this pointer yields the *i*'th element of the array. This action of adding an integer to (or subtracting an integer from) a pointer to get another pointer is called *pointer arithmetic* and understanding it is essential to effective C programming.

The increment and decrement operators "++" and "--" operate on pointers as well as on integers, making them point to the next (or previous) object. For this to be sensible, the pointer has to point to one of a collection of adjacent objects – i.e. an array.

What was the problem?

In the last article we made the *players* a two-dimensional array of *Card*s, and warned that there were problems with this representation. The most obvious problem is that we don't have any representation for a *single* player, apart from as their collection of cards. If you recall, the declaration we had was

```
Card players[4][13];
```

and we could extract card c of player *p* with the expression

```
players[p][c]
```

It is possible to "extract" all of the cards in a player's hand by writing the expression

```
players[p]
```

which is an array of Cards (as can be done in Pascal, but not in BASIC). However, even this is not good enough; treating a player as just a collection of cards is usually not sufficient. For example, in Bridge, or other trick-taking games, the cards ought to be grouped by suit and kept in order; in Canasta and similar games, the cards might be grouped by rank.

This is a fine (and, I admit, unintentional) example of the problem of failing to isolate representations, which we made so much of in the previous article. It does, however, give us the opportunity to look a little more at the process of describing types.

As a general rule, when we are deciding how to work with different types in a program, we must look at the different *operations* that we wish to perform on values of that type. In this case, where the types we are manipulating imitate objects in the real world, it is relatively straightforward.

Manual operation

Let us consider a player's hand of cards. What are the operations we might wish to perform? Well, we have to start with an empty hand and be able to add a card to the hand. We also have to be able to see (print) the hand. That's three already. Supposing that the type Hand represents a player's hand, we might start to write

```
void clear_hand( Hand h );
```

Hold on a moment. Don't we want *clear_hand* to actually change the hand that we pass? It would be pointless if it didn't. But, in C, arguments are *passed by value* – the function gets its own private copy of the value of the argument, which it can diddle with to its heart's content without changing the value seen by the caller (we'll discuss the special case of arrays later). This is like Pascal's value (i.e. non-*VAR*) parameters, and BASIC's ordinary (i.e. non-*RETURN*) parameters. However, we can get the effect we wish by declaring *clear_hand* as taking a pointer to a hand:

```
void clear_hand( Hand *h );
```

Similarly, we can declare *give_card* to add a card to a hand:

```
void give_card( Hand *h, Card c
  );
```

Now the question arises as to whether we should pass a *pointer* to a *Hand*, or a *Hand* to the print procedure. Clearly we don't need to pass a pointer, as printing a hand would not be expected to change it. However, *Hand*'s are likely to be largish objects and passing them as parameters may be quite slow. Pointers, on the other hand, are quite small and passing them as parameters can be expected to be cheap. With this in mind, we'll declare

```
void print_hand( Hand *h );
```

Now we can return to the dealing and printing from the previous article:

```
#define PLAYERS 4
Hand players[PLAYERS];
void deal_cards(void)
   {
   int i = 0, player, card;
   for (player = 0; player <
    PLAYERS; player++)
      for (card = 0; card < 13;
                          card++)
         give_card( &player[i],
                    pack[i++] );
   }
void print_hands(void)
   {
   int player;
   for (player = 0; player <
    PLAYERS; player++)
      {
      printf( "Hand for player
                  %d\n", player );
      print_hand( &player[i] );
      }
   }
```

We've also taken the precaution of naming the number of players, so that we can adapt to changing games a little more easily. (You might like to think about how we would conceal details of the number of cards in the pack and how many packs.) What we haven't done is to actually say what Hand's are and what the functions that clear, print and add cards to them **do**, although the code we've written doesn't actually care either way.

Details of a hand

Now we have to decide how to represent a *Hand*. About the only constraint we can put on it is that it must hold some unspecified number of cards; if we stick (for the moment) to four-player one-pack games, at most 13 cards. We need some way of recording both the cards and the number of them. To do this, we use a type that C calls a *struct*.

```
typedef struct
    {
    int length;
    Card cards[13];
    }
    Holding;
```

This defines Holding to be the name of a new type, a *structure* with two components (usually called *fields*): an *int* called *length* and an array of *Card*s called *cards*. If *v* is a variable of type *Holding* then the components can be referred to as *v.length* and *v.cards*. (The Pascal equivalent is a *RECORD*; the nearest BASIC comes is the use of byte arrays to hold arbitrary objects.)

The intention is that *length* records how many cards are held and the actual cards are held in the 0..length-1'th elements of *cards*. Thus a *length* of *0* means that there are no cards in the holding. Fortunately, this means that *Holding*s initialised to "appropriate zeroes" represent holding no cards.

A H*and* can now be represented as a *Holding*:

```
typedef Holding Hand;
```

(The reason we've chosen not to define the Hand directly as a *Holding* struct is that we may later split a hand into several holdings – for example, one for each suit.)

We can finally write the definitions for the *Hand* procedures:

```
void clear_hand( Hand *hand )
  {
  (*hand).length = 0;
  }
```

Note how this works; hand is a pointer to a *Hand*. Dereferencing the pointer gives us a *Hand* object from which we can then select the *length* field to get an *int* variable to which we then assign *0*.

The brackets are needed; the expression **hand.length* would mean to select the *length* field of *hand* and then dereference that. Since *hand* isn't a struct, the compiler will politely refuse to compile the expression. However, the need to dereference and then select occurs often enough that there is special syntax for it: we can write *hand->length* instead.

```
void give_card( Hand *hand, Card c )
  {
  hand->cards[ hand->length++ ] = c;
  }
```

give_card contains a typically incomprehensible C expression. However, with practice, this style does become acceptable or even pleasant. Let's look at it carefully. It is an assignment of the card c to an element of an array; that much is easy. Which array? – the *cards* field of the struct pointed to by *hand*. Which element? – the one subscripted by the *length* field of that same struct. (So, if *length* is *0*, the card is placed in the *0*th element of the array, which is right, because C arrays are subscripted from 0.) Oh, and by the way, increment the *length* field after it's been used as a subscript.

```
void print_hand( Hand *hand )
  {
  int i = hand->length;
  while (i > 0) print_card( hand-
    >cards[--i] );
  }
```

With all the clues from the previous two procedures, print_hand would be too easy, so we've also introduced another C statement – the *while* statement, with the general form

```
while (Test) Statement
```

If the Test is true, the *Statement* is executed and the *while* repeated; otherwise, nothing happens – for once, just like Pascal and BASIC. Notice, in the loop, that i is decremented **before** being used as a subscript; if there are *n* cards in the hand, then they occupy positions 0 to *n-1*.

Structures, pointers, and typedefs

We've spent up to now in this article re-writing code in the last article, having introduced a new representation for *Hand*'s, and involving pointers and structures. We'll finish off with some more information about structures and pointers, and a little about the *typedef* construct we've been using.

It is possible to use *struct* to declare structure variables without using *typedef*. An abbreviated syntax of a struct declaration is

```
struct Name { Fields }
    InitDeclarators;
```

The Name is called the *struct tag*; it may be omitted. It labels this particular struct type for future reference. The braces enclose declarations for the fields of the struct; each field looks like an (uninitialised) variable declaration. The fields (and braces) may also be omitted, in which case the *Name* is used to refer back to the appropriate struct declaration with that tag. (You can't omit both of *Name* and *Fields*.)

The *InitDeclarators* at its simplest is a comma-separated list of possibly-initialised variable declarations. Just as with the "ordinary" types *int* and *char*, *struct* variables may be declared to be arrays and pointers:

```
struct point { int x; int y; } p,
    *ref_p, a_p[42];
```

declares p to be a *struct point*, *ref_p* to be a pointer to a *struct point* and *a_p* to be an array of 42 *struct point*'s. If there are no *InitDeclarators*, the declaration should have a Name and *Fields*, and serves to declare the struct type but not any variables of that type. This means that a *struct* can be defined once, with a tag, and then referred to everywhere else as *struct Name* without having to repeat the *Fields*.

typedef works like this: invent a declaration for an (uninitialised) object of the type you want to define, then put *typedef* in front. The name of the object becomes the name of the type. If you look at our earlier *typedef*'s for *Card*, *Suit*, and *Hand*, you'll see that's just what we've done.

Forward reference

C pointers are well-know for engendering confusion in newcomers to the language; I hope that I have provided more enlightenment than despair. If you have any questions, send them to me or Martyn Lovell, care of Paul. In the next article, we will be discussing C's input/output operations. A

Accounts

NEW: The Account Book V3: Complete accounts including VAT to trial balance. Very easy to use whether you understand accounting and computers or not and yet it has the most sophisticated reporting procedures. "The Account Book gets first prize for both price and performance." – comparison of three different products in Micro User, July 1989. Also see review in Beebug Vol 7 No. 5. New Zealand version also now available, contact Winsley and Hall, Auckland, NZ.

NEW: The Invoice ProgramV2: Invoices and statements. Link to The Account Book or use separately. 700 customer database. 100 Stock presets. Near unlimited description space. Continuous or single sheet paper (i.e. your own letterheads). Mail shot labels and individual envelope printing. You will not be disappointed.

£27.95 each or £49.95 together.

Suitable for any Archimedes including A3000. (Also available for BBC B, B+, Compact and Master. Most drive configurations and sizes.) Send for our free fact sheets or telephone 035–478–432 anytime for further information and help.

Apricote Studios

2 Purls Bridge Farm, Manea,

Cambs, PE15 0ND. Tel: 035–478–432

Language Forum

David Wild

System calls from 'C'

I have, in the past, complained about poor responses from readers but on this subject I have been deluged with replies. The differences between the methods illustrates my point about the work involved in learning a language as some of the methods are much more complicated than others.

All the methods come to using:-

```
system(command)
```

to do the actual call but, in most cases, it will be necessary to build up the command from items in the data submitted to the program. In this event you can build up the string with either *strcopy (command,string_data), strcat(command, command_part2)* or *sprintf(command,string_data)* before using *system(command)*. To use these commands you will need to have used *#include arthur.h* and there is no way of getting back any information from the command. This won't matter, of course, if you want to do things like screen dumps or changing directories.

Malcolm Banthorpe and Clive Middleton have sent me a routine which seems more complicated for the type of call mentioned above but which ought to be of considerable value for calls which return values to the calling program.

This routine is:-

```
reg_set s;
s.r[0] = command;
swi(OS_CLI, &s);
```

and other values could be placed in registers as appropriate, while the returned values can be extracted when the call has finished.

As I don't speak 'C' I cannot be absolutely sure, but I presume that this same routine could be used with any other SWI call in addition to OS_CLI. You will need to consult your manual on the exact names that must be used for the names of the SWI's.

In release 3 of Acorn's 'C', the system call has been extended to allow *system(CALL command)*, which is the same as the system call described above, and *system(CHAIN command)* which transfers control to the called program without returning to the calling program. This could be useful for writing "modular" programs on a machine with limited memory size.

Programmers' Reference Manual

I bought my copy of this and was very grateful that the shop gave me two carrier bags to put them in! It seems to me to be very much clearer than the original with, for instance, the SWI number of OS_BYTE repeated in each description. The proof reading leaves a little to be desired as there a lot of silly mistakes such as extra words, and I have seen a number of reports on Micronet of more serious errors. I presume that Acorn will be issuing an errata sheet as they did for the original.

There can be no doubt that £79 seems a lot of money but having the right reference work can save a lot of time. This saving in time will soon translate itself into a money benefit if you can sell even one better program because of it.

In the week that I have had it, I have found a number of routines that I had not noticed before and, during the coming weeks, I will be trying them out to see if they do make programming easier.

Books on programming

The only recommendation I have had so far for a book on 'C' is from Dave Shepherd of Shrivenham who suggests buying "Programming in ANSI C" by S G Kochan at £20.95. He says that the book offers plenty of exercises and 90 programs to try.

If you are going to buy a book on any aspect of programming, go to a bookshop such as Modern Book Company or Dillons in London, Blackwells of Oxford or Heffers of Cambridge, where you can see many different books and decide which is the right one for you. Unless you are on a very tight budget do not be tempted to buy a different book just because it is a bit cheaper. The benefit of an extra £5 may stay with you for the whole of your programming life. A

MS-DOS Column

John Eden

Let me start this month by thanking you for all your letters. Please keep sending me your contributions for the new PC compatibility lists. The new lists are coming on apace but I would like to hear from you even if you only know of one working program – appreciate every one.

Using the mouse

A large part of my postbag just lately has been to do with using the Archimedes mouse under the PC emulator. The following letters are not untypical. John Muteham writes:

'As an Archive reader, I would be grateful if you could obtain some information regarding using certain IBM programs under the PC Emulator. A large amount of the new software produced for IBM and compatible computers depend on the use of a mouse in the way they operate (especially Art and DTP packages). The current Emulator does not seem to cater for such systems as whenever such software is loaded, tedious messages appear on screen such as 'Microsoft Mouse Driver Not Present' or the system loads but is totally 'frozen'. Can you tell me if there are either "program patches" available to direct the program to recognise the Archimedes mouse or whether Acorn intends to modify the Emulator to include a mouse driver?'

The situation is further aggravated by the large number of mouse driver programs around. Many IBM compatible machines are supplied with mouse drivers which have been altered to suit the hardware that they will be running on and clearly these will not work on other manufacturer's machines.

The good news is that the PC emulator is quite capable of operating with the Archimedes mouse. In order to get it to work, you need the standard Microsoft mouse driver. The bad news is that the mouse driver is not supplied on the MS-DOS boot disc. All is not lost though, as Microsoft packages which require the use of the mouse, usually include the mouse driver as part of the package. So the solution for most people will be to install the mouse driver provided with the software.

I spoke to Philip Colmer of Acorn to see if they were going to include the Microsoft mouse driver in a future release of the PC emulator. Unfortunately, in order to include the mouse driver, Acorn would have to re-negotiate their licence agreement with Microsoft. Subsequently any upgrades of the PC emulator "would have to be charged for and the administrative work this would generate would not make it worthwhile". Mr Colmer also pointed out that as the mouse driver is supplied with all relevant Microsoft packages, those people who needed it would have it.

Unperturbed, I then contacted Microsoft's customer support department and spoke to a very helpful gentleman called Phillip Payne. I asked him if it was possible to obtain the mouse driver on its own and was told in no uncertain terms that this was not possible. "The only legitimate way to obtain it was to buy a Microsoft mouse or one of the Microsoft packages that required the use of the mouse".

He also pointed out that if I obtained the Microsoft mouse driver from any source other than a legitimate one, or attempted to distribute copies of it, I would be infringing copyright! So what options do we have for using the mouse under the emulator?

1) Buy a Microsoft mouse. Cost: around £125. A rather expensive way of obtaining the driver, as you are buying hardware you don't need.
2) Buy a Microsoft package which includes it. Cost: from £125.
3) Borrow it from someone else. Cost: a guilty conscience!

Another alternative may be to lobby Acorn. If enough people were to write to them, they may just relent and re-negotiate their licence agreement with Microsoft.

Why not check through your piles of software though; you never know, you may find the mouse driver lurking on one of your discs. If you are lucky enough to find it (usually called mouse.sys), you should first copy it to your DOS directory or system disc. You then need to add the following line to your config.sys file:-

```
device=mouse.sys
```

Include the full path name if the driver is not in the root directory. Reboot the system and the mouse driver will be loaded and ready to use. Note that the Microsoft mouse has only two buttons, so only two of the Archimedes mouse buttons will work.

PC Emulator version 1.33 released

A new release of the PC emulator (version 1.33) is now available from Acorn and can be downloaded from SID or Archive BBS. As usual, yours truly will copy it for you if you send me a blank formatted ADFS disc and a stamped self addressed jiffy bag. This version now correctly parcels up the PC emulator as a RISC-OS application. The SCSI filing system is also now supported and there are two applications (one for ADFS and one for SCSI) which allow a DOS partition to be created on your hard disc. These applications are a little more friendly than the original DOS partitioner; you can enter any partition size between 1 and 32 megabytes. Together with the support for other filing systems, comes the ability to configure the emulator in a more flexible way. For instance, it is now possible to have the emulator code on one filing system while the DOS partition can live on another.

One alteration has been made to the emulator code itself, which allows the floppy drive step times to be read from CMOS RAM when the application is started. Versions prior to this used to set a head step time of 6 milliseconds for all floppy drives attached to the machine. The reason Acorn have made this change is to overcome the rather excruciating noises made by the floppy drives fitted to A400/1 and A3000 machines. These drives appear not to like 6 millisecond step times – although they work OK at this speed they become very noisy in operation.

I can see a couple of potential problems arising from this change. Firstly, if you have a 5.25" drive connected to your machine, it is essential to ensure you have configured the correct step time for the drive (usually 6 milliseconds) or you may have problems reading from it. *CONFIGURE STEP can be used to set different head step times for each drive connected to the machine (see page 322 of the user guide). Secondly, 3.5" discs formatted using the default step time of 3 milliseconds may not be readable on other IBM compatible machines. If this happens to you, you should either format the discs on the machine you intend to swap data with, or configure the step time of your 3.5" drive to 6 milliseconds before starting the emulator (the latter will of course defeat the object of the change to the emulator code).

MEMC1a and the PC-emulator

Owners of 300 and old 440 series machines may like to consider upgrading their machines to this new, faster, memory controller. (Owners of A400/1 and A3000 machines already have this fitted). The following comparisons were made on my A310 before and after the upgrade using Mu Designs IBM compatible performance analyzer (their spelling not mine).

	MEMC	MEMC1a
memory block write	90%	91%
register to memory	49%	54%
memory to register	49%	54%
register to register	50%	56%
divide by register	69%	74%
divide by memory	101%	115%
multiply by register	129%	150%
multiply by memory	117%	136%
stack operations	70%	78%
far jumps, far calls	77%	88%
mean average	72%	80%

The figures are percentage performance compared to an IBM PC/AT i.e. 100% is equivalent. As you can see, the speed increase ranges from about 1% to 17%. In use, screen update is a little quicker but other than this the difference is hardly discernible. I leave you to draw your own conclusions as to whether it is worth upgrading. As an aside, the RISC-OS desktop is more responsive if you have MEMC1a fitted, especially if you have instant effect window drags enabled. Generally, the new chip gives the machine a speed increase of about 10% although a memory intensive Mandelbrot program I have ran 45% faster!

Contact

Keep sending me your letters and don't forget your contributions for the new compatibility lists. The address; John Eden, 13 Cranleigh Gardens, Luton, Beds. LU3 1LS (no phone calls please!). Or if you prefer, you can write to me care of Archive. A

APL on the Archimedes

Jim Markland

Long gone are the days when I wanted to tell everyone about APL. In fact that sort of thing is actually counter productive. This article has, however, been prompted by the considerable enthusiasm currently being shown by one of my colleagues for this (newly discovered) language.

APL found its way into my life some ten years ago when I was looking for a vehicle for financial modelling. Very quickly FORTRAN IV was pushed aside and my own voyage through the world of APL began. It is ridiculously easy to get started with APL's mathematical notation but the language is very rich and offers much scope for new discoveries and, may I say, adventure. This it did for me with aplomb.

Early days saw me looking around the computing bookshelves in Houston. Is APL the right tool? Should we be using something else? How about ADA or Pascal? What on earth is this thing called C? The ONLY language which came close was LISP. All others proved unsatisfactory.

By the mid-eighties I was deeply into the APL mind-set and became even more committed when the ability to handle nested arrays arrived on my desk. Meanwhile PC's had sneaked up along side the IBM mainframe scene and things were happening from which I was deliciously and naively insulated. Suddenly the hitherto unassailable position of APL was being threatened by spreadsheets and other canned products.

Even when needs demanded the use of a PC, I dogmatically and mistakenly refused to look beyond my APL*PLUS/PC manuals, believing that the answer to all problems lay therein. (This is understandable when it is considered that there isn't a single programming task I have failed to complete using APL. Many are impressed with the speed of software development.)

Everything had to change, however. Having moved to an essentially VAX/Meiko FORTRAN based scientific environment, with very heavy emphasis on high resolution graphics, and having purchased an Archimedes for private use, the time arrived for a reappraisal of the situation – an uncomfortable experience.

Clearly, relatively low cost / high quality canned packages could no longer be ignored and the wheel cannot be continually re-invented every time the road is to be crossed. Operating systems, from which APL mercifully kept me so well insulated, needed to be found a place. (Yes even DOS !) Bridges had to be built between the familiar and the new. But what about the languages?

The otherwise very powerful (and grossly overpriced) nested array APL*PLUS system II which resides on my desktop 386 had (and still has) very disappointing graphics which resulted in the waste of a great deal of time. At the same time, the much-scorned BASIC V appeared to be the necessary workhorse for the Archimedes under RISC-OS, with rather unsubtle moves by Acorn toward C.

The immediate reaction was to look at C. This appeared to offer a link between the more powerful commercial system at work and Acorn's strategic plan, while offering much in the way of readily available software. What a mistake! Not the right thing to do at all. Too verbose! More than one line of code to print 'Hello World' and the Archimedes' versions do not come cheap.

Fingers burned, it was decided to revisit BASIC. Dreadful! How can anyone think in BASIC? Useful for adapting programs written by others!

FORTRAN? Last used in 1975 and much changed in the interim but also suffering from the compilation hassle and again not cheap on the Archimedes. Vendors do need to realise that languages have a very low utility value in a market where excellent canned packages abound, yet they are vital to the success of their products especially in education. Does their public really wish to pay time and time again for more wheels to be re-invented? On the bright side, some FORTRAN users may be pleased to know that an Acorn version of the subroutines given in the very successful Cambridge University press "Numerical Recipes" book is now advertised.

LISP? A garden of delights for the initiated but not readily intuitive for the younger members of the family.

Others? We could go on but it's time to draw a line.

A key factor is that children growing up with a fast moving WIMP environment rightly expect not to write reams of code to achieve pitifully uninspiring results. This is a problem with so many languages. The time cost of writing software using traditional means is prohibitive, especially if use is to be made of the complex SWI's required to drive windows.

Computers should make things easier, not make them more difficult. The latter is what Acorn have achieved for the youngster who now has high expectations and wishes to program but has yesterday's tools. High productivity tools at low cost are essential.

What prospects are there?

Well, for the BASIC-user Simtron's widely acclaimed Archway package appears to help, but at a price. (See Archive 2.10 p31.) Of this I have no experience.

Surprisingly the solution for small program developments may have come in the form of I-APL, the public domain APL. (See Archive 2.12 p 53.) APL*PLUS system II remains on my 4M 386 for heavy number crunching but the smaller jobs can be nicely handled in I-APL. Archimedes and PC workspaces are identical (except for machine code routines) and can be transferred easily.

• But I-APL is not for commercial use I hear! ...Well I do work for an educational establishment and excuse myself.

• But I-APL doesn't have a full screen editor on the Archimedes! ...Well I hear that it will eventually.

• But it's slow and has serious memory limitations! ...Yes that is true but a 32-bit version is coming.

So then why I-APL?

The answer lies partly in the commonality of the language between machines and (what is known as) direct definition mode. (Something even the grandest commercial versions don't come with.) Complete, although relatively simple, functions can be written in one line – yes, one line!

I-APL is especially useful because a 32 bit version is on the way. Paul Chapman, who follows Tony Cheal of Euclid fame, is working on this for the Archimedes and will give full access to the WIMP system. This development is eagerly awaited (as is a supply of decent productivity tool workspaces) ....BUT this will not be available until early 1990. Please don't pester I-APL for it before then. (Its release will be automatically notified to those on the I-APL mailing list *(and to the Archive Editor I hope!? Ed.)* ... these lucky people receive the little magazine "Education Vector", free of charge, courtesy of the British APL Association.)

What's in it for you?

Very little cost for sure and a little time to get started. I-APL is reasonably priced and documentation is available at a discount on production costs. Lots of fun too, I hope. If you are lucky, like my colleague, APL will find you. You will soon know whether it is right. Above all, give it a try. If you're a teacher, be doubly encouraged. Use APL notation on the blackboard and that is all the student has to enter into the computer to explore the equation.

Two interesting electronics textbooks have been written entirely using APL notation, by Robert Spence of Imperial College, London and may be worth considering.

Tony O'Hagan at the Department of Statistics, University of Warwick has been using APL to teach Statistics and has developed a number of very useful tools .

I-APL deserve much encouragement and support for this international project.

If you have any comments, address them to Jim Markland, 4 Shalford Close, Cirencester, Gloucester. (Daytime phone: 0209–860141)

APL Contacts:

• I-APL Ltd – Anthony Camacho (for info and order forms)
2 Blenheim Road
St Albans
Herts AL1 4NR
0727 60130

• Education Vector (Education APL magazine of British APL Association)

Dr Alan Sykes
Dept of Management, Science and Statistics,
University of Swansea.
Singleton Park
Swansea SA2 8PP

• British APL Association (A specialist group of the British Computer Society)
BAA Administration
Alison Chatterton,
9 Oak Grove
Hertford SG13 8AT

N.B. 1. PC versions of APL can also run on the Archimedes if properly set up. This has been successfully achieved with APL*PLUS/PC although screen handling would be much better if an APL font were available in the emulator ROM file. If someone can supply this or expand on the experience of editing this recently cited in Archive, I would be very grateful.

2. I-APL does not support nested arrays.

3. Another Public Domain PC version of APL appears to be available from Messrs I.P.Sharp

4. APL2 from IBM (reportedly hailed by one of their representatives as IBM'S strategic software development tool) is worth looking at but, like the Sharp offering, needs to be tested on the Archimedes.

Publications:

• The University of Warwick bookshop has also been a useful source of texts.

• Another supplier is Renaissance Data Systems who will supply a list of publications.

Renaissance Data Systems.
PO Box 20023
Park West Finance Station
New York 10025-1510
USA
(212) 864-3078 A

ALPS for Adventure Programming

Richard Forster

Way back in 1983, when the Archimedes was a mere twinkle in Acorn's eye, I bought a BBC B. As part of the package, I received three games and, being new to the computer world, I chose three with attractive covers. I ended up with three adventure games and have never really looked back since. I have always felt adventures were for the more "intellectual" home computer owner and since struggling to pick up my first "explosive with self igniting fuse", I have always wanted to write my own game.

ALPS is the first adventure creation system to appear for the Archimedes. Originally on ROM for the BBC, it has gradually evolved into a far more powerful system, allowing massive adventures, sentence parsing and much more. The latest version is totally RISC OS compatible and it will multi-task quite happily without gobbling up an excessive amount of memory.

Packaging and documentation

As with all products from Alpine Software, ALPS comes in a smart blue and white box. Opening it reveals a disc and two manuals. The first manual takes you through an introduction, helping you to create a mini-adventure. The second, and larger, of the two is the reference guide, though I would advise reading it thoroughly at first.

The introduction is very clearly laid out. I was able to follow through installation onto hard disc – as well as data preparation – without any hitches, first-time. Once past this stage, the flow of the manual helps getting to grips with the more vital parts of the system, as well as showing off a couple of more advanced features.

The reference guide is slightly harder to work than the introduction. It contains a lot of information that must be digested to enable you to write games but it does not read as easily as the other manual; some details not are not immediately obvious. However, once you understand the system, the guide works very well for reference purposes. The only thing seriously lacking from it was a summary of the commands.

Operation

Once installed, ALPS places itself on the icon bar.

Clicking on this opens up a tools menu which contains eleven further icons. Clicking the mouse on each of these icons reveals a menu, all of which seems to stay within Acorn's guide-lines and are a delight to use.

ALPS is "Adventure Language Programming System" and originally the system really felt like another language, but since its upgrade to Archimedes, it has lost something of its nature, especially when used with other applications. Fundamentally, though, it is still a language; you can make statements like: IF ROOM(4) AND CARRY("BOX") THEN MSG(90) which should check to see if the player has carried the box into room 4 and, if so, print message 90.

The system is written with the adventure writer and not the advanced computer programmer in mind. Once you have mastered the basics, the programming side seems almost like pure English – albeit with the odd word missing.

As with any adventure program, the major areas can be roughly divided into objects, text, rooms, puzzles and the parser. Each of these is effectively handled separately by different parts of the program and the style used makes meaningful data out of seemingly random variables.

Once you have completed a bit of your adventure it is time to test it out. With a flick of the wrist the mouse hurls you into a grey void, complete with new icons at the bottom of the screen and (hopefully) the text of your adventure in the middle.

Input with ALPS is sufficiently advanced to allow either typed text or text which has been picked up from writing elsewhere on the screen. This means that if you can see an encyclopedia and do not fancy typing in the word, you can click over it and it will appear on the command line. Icons at the bottom of the screen also allow other commands to be entered.

Once you have completed the game, the data can be made into a run-alone format for use if you do not have ALPS or wish to sell the game.

The system

The parser in ALPS will allow everything from simple *verb noun* input, to more complex sentences like: *take all except the old yellow book and then jump*. The system also copes very well with ambiguous objects. For example, attempting to take a key when there are two in the location will bring up a menu asking which one. This is handled internally and only when the correct object has been determined will it ever get passed to the program.

Verbs come in four types which, in itself is a usual idea. The trouble is that once a verb is defined as a certain type, it may not be redefined. This means that you cannot use a verb on its own e.g. *jump*, and then use it in conjunction with a noun e.g. *jump over pit*.

Whilst making it easier to process player input efficiently, this does create difficulties. As in any good system, these problems can be circumnavigated, but at the expense of "ease of use". I discovered another problem when trying to delete verbs, but this was eventually resolved. If you want to remove a verb it is far better to rename it as another verb.

Interpretation

Interpretation comes in three parts. Firstly, the creator calls PROC(0) which, like all procedures in the system, is totally user-written. It deals with events before the player's action. Secondly, the player's commands are analysed and acted upon and finally, PROC(1) is called to finish off.

The language

The language is quite comprehensive in the adventuring context and is split into several sections. Firstly we have miscellaneous commands which tend to govern computer events. These range from an OPT command (to determine whether the icons are displayed in the stand alone game) to ramsave/ramload features and the calling of machine code routines.

The message printing system is as complete as you could wish. It copes with chained messages and can have system variables in it, as you would expect. It also contains states. These are used with object and rooms, being controlled by a state flag for each item. In this way a "brightly glowing lamp" can easily become a "dimly glowing light" without the multiple objects needed by other adventure creators.

Several structures are supported, namely REPEAT ... UNTIL and IF ... THEN ... ELSE. Procedures also exist, though there are three different types depending on whether it is an event/puzzle, an exit or a verb definition. In conjunction with this, the logic operators AND and OR are supported.

Around twenty commands exist for the testing of objects and a further half dozen for rooms. These commands allow you to test quickly whether an object is carried and/or visible or to find out what the state of a room is, etc.

As well as object and room variables, over 50 system variables are provided, with commands to test their values. A further 15 commands exist for other tests, ranging from weighing carried objects to, for example, whether the north exit is blocked by a locked door.

An similar number of commands is provided for manipulation of this data, and there are some extra commands for "messy" manual manipulation. Ideals like containers are built into the system with their own subset of commands. The language is complete without any serious omissions, as far as I can see.

Overall

ALPS is a powerful and easy to use application for the creation of adventures. Any final product produced with it could be of a marketable quality. Indeed, Alpine Software have used ALPS for writing their own adventures. Even if you have only a passing interest in adventures, it could make a worthwhile acquisition. Above all else it is fun!

ALPS is available from Alpine Software for £32 plus p&p or through Archive for £29. A

Shareware / Careware List

Martin Simmons & Colin Turnbull

Martin and Colin between them have worked through all 22 of our Shareware/Careware discs and have produced the following list which should help you to see whether or not any given disc contains what you are looking for. In particular, it should tell you whether the programs will run under RISC-OS and whether they are multi-tasking.

Miscellaneous Comments

Desktop complains that some of the earlier disks are all called 'Archive'. Use *namedisk 0 <name> to change them to something uintelligent.

You may need *Dir :0 and *Library :0 before running from Desktop.

Run 'from Desktop' may mean via 'Archive Menu' by clicking on !Boot.

You may need QUIT to return to the Desktop.

Key

C	– will run from the command line
D	– will run from the desktop as a single task and then return
DR	– will multitask in the desktop
DT	– will run from the desktop as a single task but cannot return
sp:nk	– requires SpriteFree nk bytes
sc:nk	– requires ScreenSize nk bytes
font:nk	– requires FontFree nk bytes
RMA:nk	– requires RMAFree nk bytes

Shareware Disc 0 – Graphical Demonstrations

49 misc graphics demos	C D	sp:8k sc:160k

Shareware Disc 1

Menumaster text-menu driven demo constructor	C D	sc:160k
KGR Life mouse driven cellular automata	C	Runs for desktop but hangs on exit

Mandelbrot C D sp:80k sc:80k
mouse driven Mandelbrot display zoom in/out, load/save

European Geography C D sp:464k sc:160k
mouse driven map of Europe with data & flags for each country

Structured directory list module C D
command line util to list all directories in a tree

Menumaster instructions C D

Shareware disc 2

DFS reader/achiver C
reads DFS format floppy disks

Demos

9 misc graphics demos C sp:8k sc:160k

Games C sp:24k sc:160k

Connect 4; MasterMind; Solitaire; Star Trek textual

Utilities

256 colour sprite editor C

Disc archiver C

Fastload C

CMOS RAM editor v1 C Bugs - see SW disc 3

keyboard info display C

LQ850 character definer C

Matrix routines for BASIC C

Memory map lister C Runs but SpriteSize is incorrect

Vector lister Arthur only

Shareware disc 3

Needs *Configure Language 4 since boot file is Exec'ed BASIC

System D+ to 1ml converter ??? Needs SD+ to test

CMOS RAM editor v2 C sp:18k

Liberator file transfer utility C Needs a Liberator to test

EPSON FX printer setup C

Cassette Inlay Printer/Storage Did it ever work properly???

Video Tape Usage DataBase Did it ever work properly???

VTR countdown clock C

Monitor Test routines C

Improved contour demo C

Percentage Calculations Tutor C

Flip Game
Looks like a BBC micro hack. Pokes &900 which kills Archie!!

Night Shooter game	C	
Let Drop Game	C	
Channel 4 exploding logo	C	
Underground Map v2	C	sp:640k

Shareware Disc 4

Birdlog a birdwatcher's database to record sightings etc	C D	
Patience card game	C D	sp:80k
Golf game	C D	sp:160k
3D Mandelbrots	C D	
Melting shapes converts one line drawing to another in real time	C D	font:40k
Graphics demos 8 colour demos	C D	sc:160k
Graphs 3D hidden line removal graphs	C D	
FWP printer driver editor	C D	
File transfer utility	C D	
Character Editor	C D	sp:16k
Text windows demo	C D	sp:32k

Shareware Disc 5 – Sound and Music

28 classical & 23 pop tunes	D	
Piano and Organ voice generators	C D	RMA:80k each
'MusicEd' from Arthur Welcome	C D	
!Maestro from RISC OS Apps	D	

Shareware Disc 6 – FWP printer drivers for Canon, LC10 etc

HP DeskJet screen dump module	C D	
IBM character set BBC Font	C D	
View to FWP converter	C D	
Letter dating program for FWP	C D	
FWP printer driver editor	C D	
Current directory system variable	C D	
Interrupt module Run OS commands from any program	C D	
Archimedes to MSDOS text file conv	C D	
Text file to FWP to allow reformat	C D	
Multiple disc copier	C D	

An example RFS !Boot file	Arthur only???
Renderbender pictures Two ray-traced pictures	C D

Shareware Disc – Magazine database

!ArchiveX – utility to search magazine databases for various topics DR

!Creator – utility to create magazine databases DR

Databases for Archive Vols 1 & 2
ArcScan data for Archive, RISC User and Beebug Needs BeeBug's 'ArcScan' program

Shareware Disc 8 – Yaig 1.00

Yaig 1.00 Yet Another Invaders' Game Should the ship move sideways?	C D sc:160k

Shareware Disc 9

3D Bounce – hit a ball with a bat	C D sp:8k
Repton map printer	
Bowls – mouse driven game of bowls	C D
RollerBall roll the ball up the ramps game	C D sp:8k
Rotating diamonds demo	C D sc:160k
10 pictures people, cars	C D
Character editor #1	C D
Character editor #2	C DT
Auto rug generator	C DT
Examine all files	C D
Filedo utility	C D
FileType module	C Superceded by RISC OS
Directory tree printer	C D
File recovery utility	C D
Mode 15 to 12 converter	C D sc:160k
Palette file Arthur -> RISC OS	C D
NEC PC-8023 FWP printer driver	
Screen fading demos 2	C D
System Delta + -> 1st Mail or CSV	???
ADFS module disassembler	Arthur only
Bank account manager	C

Shareware Disc 10

Astronomy PROCs for BASIC	C	
Address Book	C	sp:24k
Colour chooser	D	sp:32k
Expenses manager	C	
Reversi	C	Hassle the mouse on exit
Star Trek graphical	C D	
Wire frame cup drawing	C D	

Shareware Disc 11 – Classical concerti

Arthur music editor + 6 pieces ORGAN + PIANO voices	C	sp:8k

Shareware Disc 12

!Address – address book	DR		
!Heating – calculate central heating losses	D		
!InlayPrint – store and print	cassette inlay cards	DR	Some minor bugs
!Pento – 2D shape puzzle	D		
!Menu – Archive Menu Master System	DR		
!RubikCube	D		
!Screen	D	sc:160k	
!SetType – set file type by dragging file onto icon	DR		
!Slash – compact BASIC progams	DR		
!Stamp – Stamp file by dragging	DR		
QL Reader – Read QL disks	D		
Drive rotation frequency check	D		

Shareware Disc 13

!ArcOutline – outline text editor	DR	Some minor bugs
!Backup – hard disk file copier	DR	
!Calendar – desktop calendar	DR	
!Dustbin – file deletion by dragging file into bin	DR	
!Golf – golf by mouse	D	sp: 160k
!IntModule interrupt driven OSCLI command	D	
!Mandel – Mandelbrot set viewer	DT	
!Menu – Archive Menu Master System	DR	
!RubikClock – puzzle	D	
!Screens – 2 pictures	DT	
!VideoBase – video tape contents	DR	Some minor bugs

Shareware Disc 14 – Arctist Plus

Arctist+ 256 colour art package	DT	

Shareware Disc 15

Graphic demos 8 various	D sc:160k	Doesn't work unless ESC is pressed during the first demo
Two !Draw'n fonts	D	
6 Maestro tunes		
Utility to improve View wp	Needs a ROM image of View	
20 Sampled sound voices	D	
!Slowgrow – fractal snowflake	D	
!FastLine – line drawing utility	D	
3D mandelbrot	C D	
Zooming mandelbrot demo	D sp:640k	

Shareware Disc 16

!BigM – 256 colour art package	DT	
!Psion – transfer files between Archimedes and Psion Organiser	D	
!YAIG Version 1.41 Yet Another Invaders' Game	DT	Sometimes it returns ok

Shareware Disc 17 – Acorn RISC-OS Extra Disc

!65Host – improved BBC emulator (sound, Centronics printer, limited DFS support etc)	D	
!PrinterDM dot matrix printer manager	DR	
!PrinterIx Integrex colour printer manager	DR	
!PrinterLJ HP Laser Jet printer manager	DR	
!PrinterPS Postscript printer manager	DR	
!System – updates of SharedCLibrary, FPEmulator, ColourTrans	DR	
Improved IRQ modules, Hourglass, SoundScheduler, Wimp_Utils	D	
Improved Net... modules	D	

Careware Disc 1

Simon – the sound & lights game	C DT	
Sliding block puzzles	C D sp:128k	
Headstand turn your screen upsidedown	C	

Label Printer	C D	sp:32k
Othello	C DT	
!ProgCalc – a scientific desk calculator	DR	
Graohical calendar	C D	
Four 2 player games	C D	
Two 1 player games	C D	
Six graphic demos	C D	
Biorythms, Numerology & Chinese Horoscopes	C D	
key scanning routines	C D	
Make utility	C D	

Careware Disc 2

!AdAstra – asteroids	D	
!Basic – run BasicEd from desktop	DR	Bug - needs to be $.!Basic
!Calendar - pop-up calendar	DR	
!DiscEdit – change contents of disks byte by byte		
!Fractal – Universal fractal gen	DT	
!MaxGammon – backgammon game	DR	
!Menu – Archive Master Menu System	DR	
!Puzzle – change all surfaces to one colour	D	
!Yahtzee – the Five Dice game	DR	
DisASM – mouse controlled *MemoryI	C D	
Squish – BASIC program compressor	C D	

Careware Disc 3

!BasicEdit run the BasicEd from the desktop	DR	
!Forth – forth language compiler	DR	
!FruitMach – a fruit machine	DR	
!HDBackup – backup hard disk to floppies	D	
!Impact – breakout game	D	sp:16k
!Menu – Archive Master Menu System	DR	
!TicTacToe – 3D OXO human v human	DT	sc:160k
Effects of 'noise' demos	C	
4 Pictures	C	sc:160k
ExMSDOS - *Ex for MSDOS disks	C	
TDumpFile - display a graphic file	C	

Careware Disc 4

!Bin – desktop dustbin	DR
!PCDir – read/write files on MSDOS disks from the desktop	DR
!Projector – Ace Film Player + TheBirds animation demo	DR
!SerialLink – connect BBC to Arch	D
!Invade – a desktop flying saucer	DR
!Pelmanism – patience game	DR
!Wander – a desktop aquarium	DR
!SparkPlug – deARC utility	DR
18 Maestro tunes	D
Function keystring printer EPSON	C D
Convert between Interword, View, Pipedream and WordWise+ files	C D
Screen blanker module	C D A

Fax*File Manager from MewSoft

Rob Wears

This is a package for producing customised pages for those annoyingly useful pocket organisers. It consists of a single disc and an eight page manual. The manual itself is obviously a low-budget affair, produced on folded A4 sheets. It is, however, well laid out and explains the normal working of the programs clearly and concisely.

The software is a suite of BASIC programs accessed via a menu program. The disc is not copy protected but each disc has its own registration number to allow Mewsoft to keep a record of all registered users. Mewsoft make it absolutely clear that they will prosecute anyone they find using an illegal copy. This is a very commendable approach, as it does not penalise the ordinary user in any way. Well done, Mewsoft!

The programs themselves are easy to use and, with one exception (detailed below), make sensible use of on-screen menus and the keyboard. The major problem with this package is the lack of adequate printer support facilities. There is no way of adjusting the package to suit your own printer, other than by delving into the innards of the programs themselves with the BASIC Editor.

In addition to this, the code for translating the screen image to a form that can be coped with by the bit-image graphics instructions of the printer appears to be in machine code. This makes it rather difficult to modify for the average user. To be fair, Mewsoft make it plain that the program is only Epson FX80 compatible. For registered users, they will provide the necessary adjustments to support Epson compatible 24 pin printers, but surely I can't be the only Archimedes user who still has to manage with the same printer that I used with the old Beeb (an Epson MX compatible)? In a package designed purely to produce printed output, the lack of support for alternative printers is a glaring omission.

On a brighter note, producing customised pages on screen is very easy and a scaled down version of Mewsoft's A4 Forms Manager is provided. This is a joy to use. It allows any combination of text and line graphics to produce any form of chart. Facilities

are provided for copying areas of a chart and for automatic insertion of your own data (in the form of ASCII strings). This allows one page design to be used to produce several pages each containing different information (e.g. pages of appointments for the day).

An address book facility is available, but you are limited to a name, phone number and a three line address for each entry. Entering information into the successive lines of the address book is cumbersome, with no apparent way to get to the next line other than via the menu. However, data entry on the individual line is very easy and there is even a "swap case" facility which is missing on other, more expensive applications (like First Word Plus for instance!). You can store addresses in disc files and sort them for printing either pages or labels. A diary allows you to print pages of one month per page, one week per page or two days per page – these layouts can all be customised. There is a calender printer, which prints a whole year on one page and there is an elegant little database which functions smoothly. Each application has several example files to load in and play with. The example file for the database is a list of printer control codes – this might be all too useful!

Mewsoft are easy to contact on the phone and are very helpful. They promise future software support for registered users of their software and are able to supply paper suitable for use in a pocket organiser. If you use an organiser and can't find the right page layout for it anywhere, this package is for you. My only real reservation is the lack of support for printers other than the Epson FX80 range. A

Competition Corner

Colin Singleton

For our December competition we have a puzzle concerning beer – gallons of it! If you try solving this one the obvious way, you will never be able to look a pint in the eye again. You have seen those puzzles where you are given a set of jugs of the most ridiculous sizes and are asked to finish up with four pints in the seven pint jug and no mess on the floor? This is one of those, but I think you will find it a little more difficult than most. I solved it some years ago on a BBC Micro. Paul has offered £50 worth of Archive tokens to be used for prizes which I will distribute to the senders of the best entries.

Tom, Dick and Harry have won the Quiz League at their local. The prize is a firkin of ale. For those who do not remember beer in real barrels, that is nine gallons. It has been delivered to Tom's place, and Dick and Harry have come to collect their shares. They have each brought an empty pin (4 gallon barrel) in which to collect their three gallons. Tom's share is to remain in the firkin. The only other vessel of known size they can find is an eleven pint jug!

Usual rules. Ignore the practical problems. The four vessels are all ungraduated, but are of precise size, and you can pour accurate quantities from any to any other stopping only when the first is empty or the second full. No drinking on the job! Share out the beer in the smallest possible number of pourings.

The objective is to write a program which will produce a printed list of the pouring sequence for any problem of this type (within whatever limits) as quickly as possible. Initially, however, contestants are asked merely to reply stating the number of pourings required in the above problem. Those nearest the mark will be asked to list the pouring sequence and submit their programs for assessment according to suitably vague criteria!

I would welcome any comments and suggestions concerning competitions, past present or future. Entries and correspondence please, either to NCS Office, or to me at 41 St Quentin Drive, Sheffield S17 4PN.

Good luck! A

Factfile

4th Dimension	P.O. Box 4444, Sheffield. (0742–700661)
4mation	Linden Lea, Rock Park, Barnstaple, Devon, EX32 9AQ. (0271–45566)
Abacus Training	29 Okus Grove, Upper Stratton, Swindon, Wilts, SN2 6QA.
Acorn Computers Ltd	Fulbourn Road, Cherry Hinton, Cambridge, CB1 4JN. (0223–245200) *(–210685)*
Ace Computing (p22)	27 Victoria Road, Cambridge, CB4 3BW. (0223–322559)
Aleph One Ltd	The Old Courthouse, Bottisham, Cambridge, CB5 9BA. (0223–811679) *(–812713)*
Alpine Software	P.O.Box 25, Portadown, Craigavon, BT63 5UT. (0762–342510)
Anonymouse (p9)	2nd Floor, 3 Spring Garden Lane, Gosport, Hants, PO12 1HY
Apricote Studios (p44)	2 Purls Bridge Farm, Manea, Cambridgeshire, PE15 0ND. (035–478–432)
Atomwide Ltd	23 The Greenway, Orpington, Kent, BR5 2AY. (0689–38852)
Beebug	Dolphin Place, Holywell Hill, St Albans, Herts, AL1 1EX. (0727–40303) *(–60263)*
Calderglen Computers (p36)	279 Keighley Road, Colne, Lancashire. (0282–866481)
Cambridge Int'n'l Software	8 Herbrand Street, London, WC1N 1HZ. (01-833–4023) *(01–837–6077)*
CJE Micros	78 Brighton Road, Worthing, W Sussex, BN11 2EN. (0903–213361)
Clares Micro Supplies	98 Middlewich Road, Rudheath, Northwich, CW9 7DA. (0606–48511) *(–48512)*
Circle Software	33 Restrop View, Purton, Swindon, Wilts, SN5 9DG. (0793–770021)
Colton Software (p25)	149-151 St Neots Road, Hardwick, Cambridge, CB3 7QJ. (0954–211472) *(–211607)*
Computer Concepts (p30/31)	Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX. (0442–63933) *(–231632)*
Computerware (p18/19)	11 Livestock Market, Hall Road, Norwich. (0603–507799)
Dabs Press (p5)	5 Victoria Lane, Whitefield, Manchester, M25 6AL. (061–766–8423) *(–8425)*
Database Software	Europa House, Adlington Park, London Road, Adlington, Macclesfield, Cheshire, SK10 5NP. (0625–859333) *(–879966)*
David Pilling	P.O.Box 22, Thornton Cleveleys, Blackpool, FY5 1LR.
G.A.Herdman Educational	43 Saint Johns Drive, Clarborough, Retford, Notts, DN22 9NN.
IFEL	36 Upland Drive, Plymouth, Devon, PL6 6BD. (0752–847286)
Impact Software	Unit 3, 1 Percy Street, Sheffield, S3 8AU. (0742–769950)
Lingenuity (Lindis)	P.O.Box 10, Halesworth, Suffolk, IP19 0DX. (0986–85–476) *(–460)*
MewSoft	11 Cressy Road, London, NW3 2NB. (01–267–2642)
Minerva Systems	69 Sidwell Street, Exeter, EX4 6PH. (0392–437756) *(–421762)*
Mitre Software	26 Creechurch Lane, London, EC3A 5BA. (01–283–4646)
Moray Micro Computing	Enzie, Slackhead, Buckie, Moray, AB5 2BR. (05427–377)
Morley Electronics	Morley House, Norham Road, North Shields, NE29 7TY. (091–257–6355) *(–6373)*
Musbury Consultants	8 Fairhill, Helmshore, Rossendale, Lancs, BB4 4JX. (0706–216701)
Oak Computers (p40)	Cross Park House, Low Green, Rawdon, Leeds, LS19 6HA. (0532–502615) *(506868)*
Software Solutions	Broadway House, 149-151 St Neots Road, Cambridge, CB3 7QJ. (0954-211760)
Solomon Software (p29)	P.O.Box 258, Wolverhampton, WV2 3AS. (0902–28522)
SPEM (p8)	Via Aosta 86, 10154 Torino, Italy. *(Fax 010–39–11–280009)*
Swift Software	347 London Road, Hazel Grove, Stockport, SK7 6AA. (061–477–8405)
Techsoft UK Ltd (p26)	Old School Lane, Erryrs, Mold, Clwyd, CH7 4DA. (082–43318)
The Data Store	6 Chatterton Road, Bromley, Kent. (01-460-8991)
The Serial Port (p17)	Burcott Manor, Wells, Somerset, BA5 1NH. (0749–72234) *(79794 data 300–2400)*
Watford Electronics	250 Lower High Street, Watford, WD1 2AN. (0923–37774) *(01–950–8989)*
Wingpass Ltd	19 Lincoln Avenue, Twickenham, TW2 6NH.

Norwich Computer Services 18 Mile End Road, Norwich, NR4 7QY. (0603-507057) *(Fax 250095)*

Archive

Subscription Magazine and Support Group for *Archimedes* Users

Archive Magazine contains:

- News
- Reviews
- Hints and Tips – a major feature
- Articles for Beginners
- The Latest Technical Information
- Program Listings
- Free Small Ad's Section
- HELP – Requested and Offered
- Contact Box – to help you form common interest groups

Bulletin Board: Ring the Archive BBS on 01-683-0629, up to 2400/2400, scrolling, 8n1.

- Very Latest News
- Down-load Software
- Mailbox Facilities
- Chat line

Technical Help Service (£8 / year)
A telephone hot-line service for immediate help with your technical problems. Any member can send written enquiries, but for a fast response use the THS!

Members' Discount: Archive offers its members up to 15% off software and hardware from a range of different suppliers when purchased through Norwich Computer Services.

Subscription: 12 issues £14.50 (UK)
Europe £20, Middle East £25,
America / Africa £28, Elsewhere £30.
Technical Help Service £8

N.B. All earlier issues have now been re-printed – you may back-date your subscription as far as issue 1 (October 1987) – to take advantage of this huge bank of information.

Archimedes is a trademark of Acorn Computers Ltd.

* Please send copies of *Archive* magazine for ____ years starting from...

Volume ____ Issue ____

* Please enrol me on the Technical Help Service for one year. (£8)

I enclose a cheque for £ _____ payable to "Norwich Computer Services".

Name: _____

Address: _____

_____

_____ Postcode: _____

Norwich Computer Services, 18 Mile End Road, Norwich, NR4 7QY

Special three-year subscription starting from volume 1, issue 1 – £36